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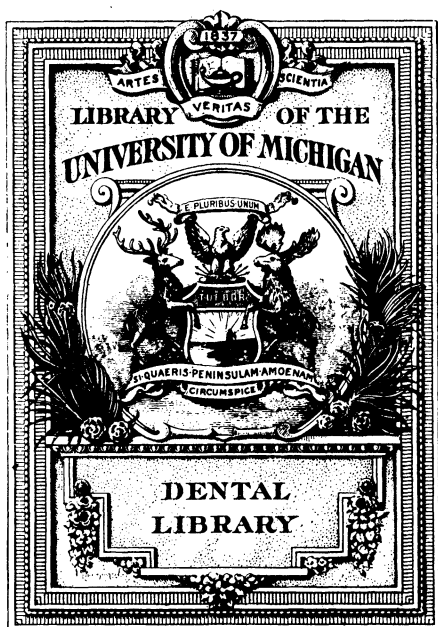
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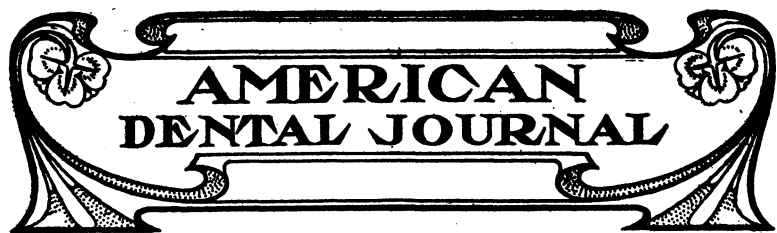
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LISTERINE TOOTH POWDER

A fourth of a century of continued, satisfactory employment of Listerine has demonstrated to many who have used it during this entire period, that Listerine is the best antiseptic for daily employment in the care and preservation of the teeth. Listerine Tooth Powder, then, is not intended to supplant Listerine in the daily toilet of the teeth, but is offered in response to a popular demand for a frictionary dentifrice to be used in conjunction with this well-known and time-tried antiseptic.

Listerine Tooth Powder is composed of precipitated carbonate of calcium, carbonate of magnesium, oil of cananga, and the antiseptic constituents of Listerine.

The simplicity of its formula, in itself commends the powder. The English precipitated chalk and magnesia are the finest obtainable, and absolutely free from grit; the oil of cananga possesses properties opposed to inflammatory conditions of the gums, and together with the antiseptic constituents of Listerine, adds to the desirable qualities of the product. However, it is to the list of articles which have been omitted from the formula that special attention is directed, and the manufacturers believe the profession will agree that the absence of pumice stone, cuttlefish bone or other abrasive substances, and of sugar, orris root or superficial perfume of any character (the usual ingredients of tooth powders and liable in themselves to fermentative action in the mouth), is a distinct advantage.

Lambert Pharmacal Co.
St. Louis, U. S. A.

OUR POST GRADUATE COURSE

PORCELAIN.

T. ELHANAN POWELL, D. D. S.

Several chapters have been devoted to the preparation of cavities, because scientific shaping of cavities is the basis for all successful inlay work. The next step is certainly important and, unless done with great care and accuracy, the operation will be a failure.

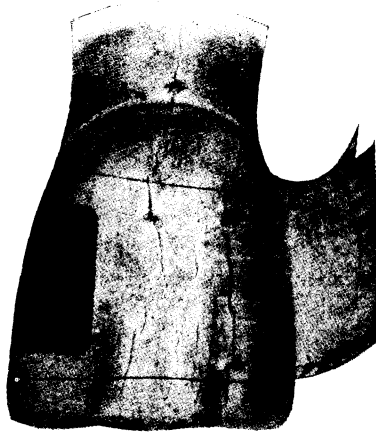


Fig. 8. Showing Strip of Rubber Dam, by Which Matrix Is Held in Place While Burnishing.

There are three methods for reproducing the shape of cavity in metal matrix which is used as a vehicle for baking porcelain. This matrix must fit the cavity accurately and be removed without any change of shape.

The method first used by the majority of the best workers and one which still obtains with them is to burnish the metal directly into the cavity. For this purpose we use platinum 1-1,000 or 1-2,000 fine. This must be annealed in the furnace until it is very soft and pliable before an attempt is made to burnish it to the cavity; this attempt



Fig. 7. Showing Application of Universal Burnisher and a Means of Securing Matrix with Silk Floss While Burnishing Margins.

Fig. 1. Universal Margin Burnisher, No. 1.

Fig. 2. Cervical Margin Burnisher—Distal Cavities, No. 2.

Fig. 3. Cervical Margin Burnisher—Mesial Cavities No. 3.

Fig. 4. Burnisher for Adapting Matrix to Floor and Wall of Cavity Prior to Using Margin Burnishers, No. 4.

Fig. 5. Burnisher, Smaller Size, for Same Purpose as No. 4, No. 5.

Fig. 6. Burnisher for Adapting Matrix Where Grooves Are Employed for Retention, No. 6.

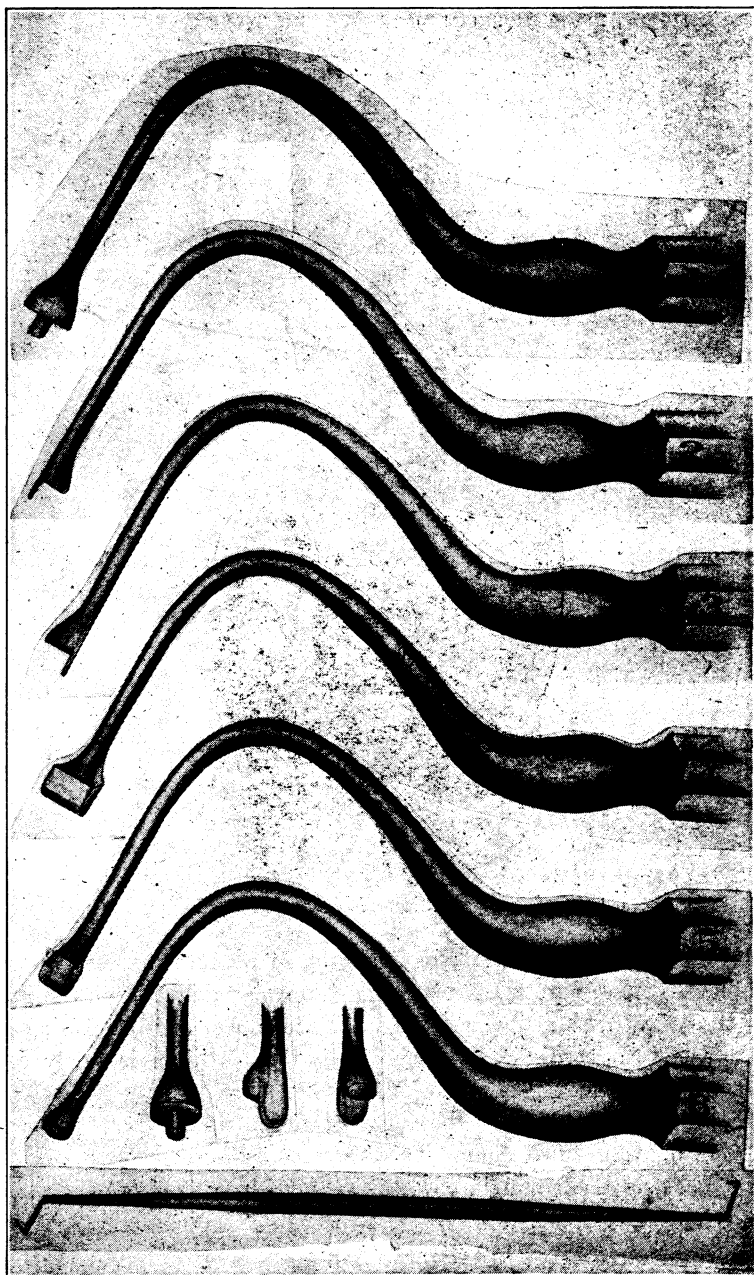


Fig. 9. Double End Matrix Hook, for Teasing Out Matrix from Cavity.

had better be made first on model over and over again until a considerable degree of efficiency is attained at burnishing before it should be attempted in the mouth.

The way we do this is to take a piece of platinum about four times the size of the cavity and place it so that the cavity will be in about the center of the platinum; then, *passing a thin piece of rubber dam across the cavity and platinum, draw it back across the tooth tightly enough to hold the platinum in position. While holding the platinum in position with one hand with a pledget of wet cotton in

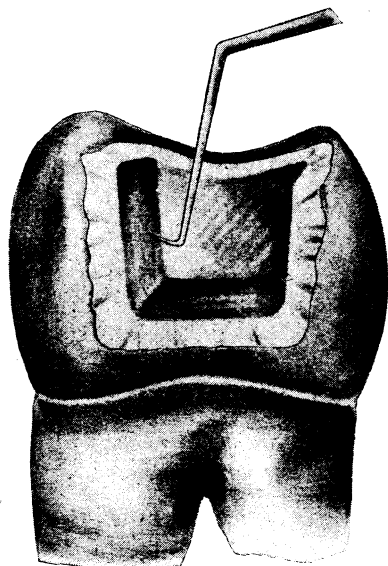


Fig. 10. Showing Application of Teaser in Removing Matrix.

the pliers, gently but firmly press the platinum into the cavity; continue this process until the platinum conforms fairly well to the floor of the cavity; then, with pieces of vulcanite rubber and burnishing instruments, the work is continued until the platinum is fairly conformed to the floor and walls of the cavity.

At this point remove the matrix, reanneal in the furnace before proceeding to burnish the matrix with the steel burnishers.

Looking at the matrix now we find much overlapping of the plat-

*Fig. 8.

inum at certain points within the cavity and wrinkles extending around the margins. These must be removed by patient burnishing with instruments made for this purpose, as shown in accompanying cuts.

It is a good plan to have an instrument with a soft rubber point with which to hold the matrix in position while burnishing; or, if this is not available, tie the matrix in position by encircling the tooth with silk floss, *leaving both hands free for work of holding and burnishing. Continue this burnishing until the wrinkles are all removed, after which there is a rocking motion to the matrix, indication that it has been sprung out of position at some point.

This must be remedied by taking a piece of tape broad enough to cover the entire matrix, pass it over the cavity, tightly drawn with the same motion as when polishing a filling.

If matrix still rocks, pack again with vulcanite rubber and while stretching tightly across the matrix a piece of rubber dam burnish the soft rubber thoroughly into the cavity; also, burnish the platinum over the margins of the cavity. If sufficient time and care are used at this point the matrix should be a perfect reproduction of the cavity.

Another method in use is to burnish camphor gum into the matrix after the first rough adaptation has been made. Men who use this method claim that a perfect matrix is secured and the rocking tendency avoided.

Another method is to take an impression of the cavity with modeling compound and burnish the matrix to this impression until the matrix fairly conforms to the cavity; finishing the burnishing of the matrix to the cavity itself.

Still another method is to take an impression of the cavity with modeling compound, cement or gutta percha, making a model with cement, amalgam, or cast metal and burnishing or swedging a matrix into this die.

On the face of it, this would seem the best method of all, and, if it were not for one or two things, I should recommend it. In the first place, it is difficult to secure a correct impression of some cavities; notably, approximal cavities; and, secondly, on account of tendency of material to expand or shrink, the matrix when completed would not fit the cavity. If one should use this method, gutta percha

Fig. 7.

would be the better material to use for the impression for labial, buccal and occlusal cavities. Make a small impression tray out of copper or aluminum plate to use for taking the impression. Then take a piece of gutta percha two or three times the size of the cavity, warm it over the alcohol lamp, and with the fingers roll it into a cone shape. Warm the impression tray, place the large end of the cone next to the tray; soften the piece of gutta percha, wet the cavity, and then force the gutta percha into it. Hold firmly in place; thoroughly chill with a few drops of cold water and remove the impression from the cavity.

Now to obtain a model, mix some cement to the consistency of putty, forcing it down thoroughly over the impression, applying the force in such a manner that the deeper recesses of the impression shall be perfectly filled with the cement. When the cement has hardened thoroughly, warm and remove the gutta percha; then you will have a model of the cavity into which you can burnish or swedge a matrix very satisfactorily. Some men invest this model in a ring of plaster of paris, leaving the cavity and margins exposed; this adds to the convenience by holding the model firmly in position for swedging or burnishing.

Dr. F. E. Roach of Chicago has invented a machine for making models which is very unique and inexpensive, and it simplifies the making of inlays by a model.

In making matrices for inlays the cavity should be smoothly polished so that the matrix will release easily from the cavity. If the matrix does not come away easily great care should be used to avoid distorting the matrix. In Fig. 7 is shown an instrument which is used for teasing the matrix out of the cavity.

Fig. 9 and Fig. 10.

OPERATIVE DENTISTRY.

BY R. B. TULLER, D. D. S.

CLINICAL PROFESSOR OF OPERATIVE DENTISTRY, CHICAGO COLLEGE OF
DENTAL SURGERY.**FURTHER TALK ON DIAGNOSIS.**

The importance of correct diagnosis is more and more impressed upon the dental practitioner as experience adds to his knowledge, and he has occasion to note wherein error has been made, possibly by his own faulty judgment or lack of thorough examination, and the shortcomings of others in this respect, who have gone before.

Over-confidence of ability to promptly discern at a glance, so to speak, the difficulties presented for our advice, treatment and correction lead to mistakes not infrequently that are realized later and regretted, if not frankly admitted.

The best and most experienced operators are not infrequently brought to face with problems hard to determine with all their skill and experience; and those fresh from schools or comparatively young in practice find themselves quite at sea as to the cause of some ailments brought to their hands. No doubt the curriculum of the schools covers amply diagnostics, but the didactics are confined mostly to lectures; and in the infirmary demonstrators are at hand to determine for the student if there is a question, and it is only when they get into practice and must rely upon themselves that their diagnostic ability is put sorely to test, and often found wanting. Then begins the gaining of knowledge to be had from experience.

These younger operators, as well as some older ones, are often led astray by the statements and opinions of the patient in hand; and while interrogation of the patient is necessary to get started right as to the symptoms and especially of obscure cases, the operators learn early in practice that the sufferers' statements cannot be entirely relied upon. Many a good tooth has been lost in the past, when extracting was generally the remedy for one that was aching (and it is even done today), by the patient indicating the wrong tooth and the operator relying upon that information.

Some operators seem to feel that unless they can express an unqualified opinion instantaneously, and appear to grasp the whole situation at a glance, that their ability may be questioned; but if one has a reasonable amount of tact, a very careful diagnosis may be made, with

the result that the confidence of the patient is more firmly secured.

In examinations of the teeth a great many dentists confine their effort to finding cavities of decay only; unless some other lesions are so plainly apparent that it would be impossible to overlook them; and it is not an uncommon thing to come across a patient who has had very creditable work done in filling, etc.,—possibly exceptionally fine work done—at the same time plenty of evidence of pyorrhoea that has been wilfully or negligently overlooked. For the reason that pyorrhoea is a very disagreeable and sometimes tedious condition to care for, some operators may wilfully overlook it and take up the work only that is more agreeable. This is a reflection on our generally high professional status, but is true nevertheless.

A lady came to my hands a few years ago who had been under the care of another dentist for some time. There had been done an extensive lot of filling, but some of the teeth were getting loose from pyorrhoea. When I called attention to it she remarked that she had never heard of pyorrhoea before. She had noticed that some of her teeth were loosening, but she said: "Dr. — told me that there were several teeth a little loose and that some day I would lose them; but he never suggested any remedy and never applied any." That looked to me like wilful neglect.

Of course, we cannot always follow the course we know is best, owing to time, or lack of time, and various other conditions; but the best way to examine or diagnose a set of teeth, upper and lower, is to begin by thoroughly removing all deposits and stains, going carefully after hidden deposits under the gums which may not be suspected from any outward appearance. During the operation cavities of decay will be noted, if there are any, and later explorations will determine whether any cavities are present in obscure places, overlooked in scaling. The use of floss silk between the teeth will readily locate cavities there that have progressed enough to have sharp edges that roughen up or cut the silk floss.

One of the very first things to be done in diagnosing the oral cavity is to press the gums about all the teeth on all sides with the finger and observe if any accumulations are expelled from under the free edges. If the gums are in a perfect state of health, nothing more than serum will be expelled. Any accumulation of pus or foreign substance shows a deteriorated condition, and the necessity of scaling and of antiseptic and stimulating treatment.

If patients have been suffering with facial and cranial neuralgia, the cause of which is unknown, some defective tooth, or some defect in the tissues about the teeth may be at least suspected. Neuralgia comes more from the teeth and immediate surrounding parts than from any other cause.

Where many teeth are defective it may be difficult to say any one tooth more than another is the direct cause of neuralgia, and of course all decayed teeth should be properly treated and filled. This may have been done, or at least seemingly so and yet neuralgia persists. In such cases a diagnostic effort should be made by percussion—lightly tapping each tooth and note the sound. In teeth that are normal in their sockets there is a clear and quite resonant sound, and a change will be quickly noted when one comes to a tooth having some abnormality in its attachment. Usually such a tooth has manifested some pain in masticating or on pressure or percussion; but from the peculiar sound in tapping one may place it under suspicion of being a cause of neuralgia, even if it is not tender and does not appear to be painful in itself.

The application of heat (guardedly), with a hot burnisher, will determine instantly if a vital pulp holds the fort. If the pulp is in a slightly inflamed or irritated condition, this application of heat is quite apt to start up a pain that may continue for some seconds in contradistinction to the normal pulp which resents it but does not continue to throb. Of course if applied heat was continued there would be pain continued. The hot instrument is to be used with but a very quick touch only until a tooth is reached that is sluggish in response, then that can be tested out to a finish. Teeth with a partially calcified pulp or extensive secondary deposits do not respond so quickly to the heat touch as do normal pulps, and dead pulps do not respond at all, unless the tooth is made hot enough to irritate the peridental membrane, which would be approaching a danger point. Instead of a hot instrument a mass of heated gutta-percha may be pressed about the tooth. The objection to a heated instrument is raised by some operators that a touch, however quick, is liable to check the enamel. I do not believe there is danger unless the instrument be too hot. It should never approach a red heat. A heat of about 215 degrees F. is quite enough.

An explorer used to discover dental caries should be very sharp and slender at the point, and cannot then be depended upon entirely

to locate cavities, as has been heretofore intimated. When this fine pointed instrument catches and holds a little in the sulci of teeth, such places should be channeled out and filled though decay is not readily visible, and especially unless the tooth is well dried.

Some operators use this fine explorer to explore for deposits under the gums; but why not explore with an instrument which may be used at the same moment as a scaler and thus save the patient one excursion at least into a very tender region? This has reference to incipient deposits that are comparatively easy to remove, and not extensive and deep seated deposits that may need special and entire sittings, with a variety of instruments specially made for the work. There is a delicate sickle shaped scaler—Perry-Darby No. 11—that may be used with great satisfaction in incipient as well as more extended deposits.

When a tooth has become sensitive to thermal changes the symptoms may be read as follows: Painful spasms in the pulp induced by cold indicates an irritated and congested condition. Such spasms may subside of their own accord in due time, but if continued with increasing intensity and frequency the condition soon passes to inflammatory, and both heat and cold, may cause pain, and generally more prolonged, and later cause death of pulp. When a pulp is dead it does not respond to ordinary thermal changes; hence, the application of heat is usually a very perfect test for teeth that have lost vitality; bearing in mind that extensive calcic deposit in the pulp chamber is sometimes misleading. But that same calcic deposit may produce intense neuralgia.

BURNISHING THE MATRIX.

One feature about the burnishing of the matrix may be new to some of you. We all know it is difficult to force platinum or even pure gold thoroughly into a deep cavity. Now, it is a very simple matter, and only takes a few seconds to prepare a piece of orange wood or pine, approximating the shape of the cavity, start your matrix over that and get it drawn down so it will fit down into the deepest part of the cavity before you place it into the cavity at all; then, by means of pledgets of cotton, force it to the bottom of the cavity and start at that point to do your burnishing—at the deepest part of the cavity, and work toward the walls, completing the burnishing at the enamel margins.—A. W. Starbuck, *Wes. Journal*.

PATHOLOGY.

BY GEO. W. COOK, B. S., D. D. S., CHICAGO, ILL.

DEAN OF DENTAL DEPARTMENT, UNIVERSITY OF ILLINOIS; PROFESSOR
OF BACTERIOLOGY AND PATHOLOGY, UNIVERSITY OF ILLINOIS.

It is well to mention here that Mandry isolated from bronchial mucus, a bacilli partaking of some of the characteristics of the germ just mentioned. I, two or three times, found a germ in the bronchial mucus in the nasal passage that answered all of the morphological characteristics, with the exceptions, that I was unable to produce any pathological lesions on the mucous membrane of the nasal passage, or the mouth. Fasching and Abel both have cultivated a capsulated bacillus from the naso-pharyngeal space, but, evidently, their investigations were quite incomplete.

Weichselbaum, Lehmann and Naumann have studied a diplococcus intracellularis which was isolated from an individual suffering from meningitis. It is indistinguishable from that of pneumonia. They found, however, that the virulent cultures retained their pathogenic properties much longer than did the streptococcus lanceolatus. This germ is said to have been found in certain secretions of individuals suffering from cerebrospinal meningitis; it seems to have been found in the nasal mucus of a healthy individual.

Perhaps it would be well here to call attention to another micro-organism that has been designated by Kurth as streptococcus involutus. This germ seems to take on an artificial cultivation certain peculiar characteristics, differing somewhat to that of the typical forms; other times there seems to be a kind of a halo of a crystalline take place in which there is present very elongated vesicular spindle forms; other times there seems to be a kind of a halo of a crystalin mass surrounding the chains, resembling somewhat the capsulated forms just mentioned. This germ was early thought to have something to do with the disease known as mouth and foot disease of sheep, but Kurth's latest investigation has led him to believe that it has nothing to do with this affection. I isolated from the mouths of sheep suffering from some of the typical pathological lesions of the mouth. These forms differed somewhat from the streptococcus

pyogenes; I, though, placed little confidence of it being any different from the characteristic forms of streptococci.

Kreibohn seems to have found a capsulated bacilli in the saliva of healthy individuals, a very pathogenic germ, producing death in mice and rabbits in from one to two days; this organism he named *Bacillus crassus sputigenus*. Dr. Charles J. Drueck and myself examined a number of mouths, both sick in bed and those that were out patients of the dispensary, with a hope that we might be able to find a micro-organism that answered all of the morphological and pathological characteristics of this germ. We found, however, a micro-organism answering some of the descriptions of the germ, but we did not find one that gave the peculiar characteristic growths on nutrient media. Dr. Thombaugh (who at that time was interne at Mercy Hospital) and myself, found a germ very analogous on some surgical dressing, that was taken from the mouth of a boy that was suffering from a fracture of the lower jaw, and an external wound on the lip and chin. This micro-organism answered all the descriptions in bacterium question. Miller, in his work on the micro-organism of the mouth, has given a very good description of the *bacillus crassus sputigenus*.

Koch and Gaffky were the first to discover the very interesting micrococcus that was more fully studied by Biondi and Miller. Its microscopic appearance does not always indicate its name (*micrococcus tetragenus*), for it grows sometimes in pairs, sometimes as a tetrad; it seldom arranges itself in chain-like form. It grows on almost all the ordinary culture media; at times it is extremely pathogenic. Gaffky found this micro-organism to accompany pulmonary tuberculosis. John C. Cook and myself obtained cultures of this micro-organism from the sputum of a number of tubercular cases; in all instances it was extremely pathogenic. Its effects seems to be very much increased when inoculated in a combination of the tubercular bacilli. Rabbits seem to be more immune to the action of this germ than do the guinea-pigs or white mice; however, two rabbits succumbed very quickly towards this action. I also found it in the mouths of three persons who had been suffering, from time to time for several years, with severe forms of stomatitis. We studied the saliva and mucous patches in one mouth for six months. He was not of robust constitution and had been operated on twice for hip-joint

disease. He was also a sufferer from constipation for which he was constantly being treated. This case will again be referred to in the discussion of some pathological lesions of the oral cavity. This germ was found by Dr. Drucek and myself in two specimens of milk which were sent to the laboratory for the purpose of determining if there might be any typhoid germs in the milk. It was found from the cultures obtained from this milk, that when grown in bouillon containing a half of one per cent of milk sugar, that there was a strong acid reaction which lasted from four to six days, and then the media became almost neutral; and when the micro-organism was removed by filtration and the fluid injected into the guinea-pigs, the same characteristic symptoms were produced as in the case of inoculation with the germ itself, with the exceptions, that three out of ten guinea-pigs entirely recovered and seem to be absolutely immune to the action of the germs themselves, while inoculations made into other guinea-pigs from the same tubes caused death in the usual time. We also found that when this germ was grown in the ordinary peptone-bouillon, it did not produce as strong acid reaction, neither did it produce death with the same degree as did the germ grown in the media containing the milk sugar; neither would it immunize the animal against the action of the lethal dose of the germs.

In this connection we might mention the fact, that Boutron made the observation of two varieties, which he called micrococcus tetragenus albus and aureus. As their names would indicate, they form pigment; in the culture media they were non-pathogenic. A further study of these varieties by Boschi and Dellei showed on cultivation, that these forms soon become colorless and grew very much as the one above described.

It is well under this head to call attention to the bacillus pyocyaneus; this germ was first studied by Gessard. Under ordinary circumstances it grows as a rod-form; it may also grow in thread-form. It is usually classed as a germ of putrefaction, but undoubtedly it is possessed with pathogenic properties, that sometimes manifest themselves in an alarming way. The peculiar color which appears on culture media is due to a pigment of blue-green or leek-green appearance which is produced by a peculiar chemical substance known as pyocyanin. This micro-organism has been found in hemorrhagic sepsis; also it has been found to accompany certain forms of diarrhea in

children. In such cases it is most frequently considered to be of a toxic condition rather than an infectious one.

In the investigations of Emmerich and Low, they found that pyocyaneus would destroy the virulent cultures of anthrax bacillus. They were also able to show experimentally, that rabbits inoculated with virulent culture of anthrax, and, at the same time or soon after, if the rabbit be injected with a solution of pyocyanin followed by subsequent treatment, that the animals were able to recover from the action of the anthrax bacillus.

They were unable, however, to immunize animals against anthrax infection by treating them previously with the bacillus of pyocyaneus. The immunizing substance must be used at the time followed by subsequent treatment with the pyocyanin, in order to prevent the characteristic symptoms of anthrax infection.

This peculiar coloring matter found in the physiological activities of the bacillus pyocyanin, lead me to the investigation of the peculiar green stain so frequently found on children teeth ranging from infancy to childhood. Dr. Mathews and myself followed out some experiments by first taking the scraping of this substance from the surfaces of the teeth, separating it as far as possible from particles of food. In a few instances we were able to precipitate by alcohol a yellow substance which was soluble in water, but it did not impart that greenish tint that it formed when the same process is carried out in extracting the pyocyanin from the cultures of the bacillus pyocyaneus; we did, however, obtain a faintly violet color, which is characteristic of the enzyme of this micro-organism when it is heated with a concentrated solution of hydrochloric acid.

When pyocyanin is heated with caustic potash there is produced an intensely yellow color, and if lead acetate is added a black precipitate is formed, which is an indication that sulphur is present. In some of the investigations of ours we were also able to detect the pressure of sulphur from the green stain. There is beyond any question an enzyme in this peculiar stain found on teeth. We isolated a germ from this deposit that had a number of peculiarities as regards its physiological functions. When grown in nutrient bouillon a rather dark precipitate would be formed on the sides of the test tubes, which would give in the majority of cases the positive reaction of pyocyanin. This pigment when heated in test tubes deposited it-

self so firmly that in some instances it was almost impossible to remove it with acid, alkalies, alcohol or ether. The growth and microscopic appearance appeared very much as the bacterium gingival pyogenes, so well described by Miller, with the exceptions, however, it did not give the characteristic symptoms of this micro-organism; this is really no evidence that it may not have been the bacterium in question, for as has already been said, the variation of the pathological properties of micro-organism of the human mouth is very much greater than is usually considered by most authorities.

We were unable to find this bacillus except around those teeth having the stained appearance at the gum margin. It was found in three instances in local suppurative processes; of course it was not the only micro-organism present in these cases, but we were of the opinion at this time, the peculiar dark color of the pus was due to this germ, for the pus gave the same reaction as did the pure cultures in bouillon.

On the cultivation of this micro-organism from the pus it gave a more toxic symptom to animals, and when the bacterium was filtered out of the culture media, an intra-peritoneal injection made of the substance in which the bacterium had grown, gave positive toxic symptoms.

Miller has described a micro-organism which he has designated as the bacillus dentalis viridans. One of the peculiar characteristics of this organism was, that it imparted to the culture media, when growing, a pigment of opalescent green color. This organism was found by Miller in certain dentine. He did not state, however, the frequent presence in this process. As for myself, I have never found it present in decaying teeth, though I did find a micro-organism that answered all the descriptions of this germ in the cystic formation around the apical end of an upper central incisor. The serous exudate present had a peculiar green color; it differed very materially from the color imparted to such substance, by the bacillus pyocyaneus in that it was a decided green color. The micro-organism grew in the usual way and when injected into animals, such as mice and guinea-pigs, it would cause death in from twenty-four to forty-eight hours, except when it had grown for a considerable length of time in nutrient beef bouillon; it coagulated milk and gave it a bitter, pungent taste. It formed acid only when sugar was present in the

culture media. Biondi has classified some four or five different varieties which he found in the mouths of individuals, a staphylococcus sal various pyogenes, also a streptococcus septo-pyaemucus; then there was another he called coccus salvarious septicus, also bacillus salvarious septicus. This group of organisms undoubtedly belongs to the various forms heretofore discussed. The staphylococcus forms are frequently found in the oral cavity. When I say frequently found, I do not mean 50 per cent of the mouths are inhabited with staphylococcus. Out of a hundred and twenty-five mouths examined by Dr. Drueck and myself, we found staphylococcus albus six times. We found staphylococcus aureus seventeen times, and citrus three times. Out of total number of mouths containing staphylococcus, seven of these produced pus when inoculated into rabbits and guinea-pigs; eleven of the others were made virulent by growing them in a solution containing asparagin with a half of one per cent of sugar added. The rest of the staphylococcus isolated at that time were absolutely nonpathogenic and constantly remained so. One of the most difficult things with which we had to contend was to determine a staphylococcus from a streptococcus, for different environment in which these germs grow change their physiological function to such an extent that it may prove to be a staphylococcus in one instance, while in another instance grown almost under the same circumstances, it will be observed that the bunches will practically disappear and we will simply have a micrococcus appearance. The same can be said of the streptococcus, instead of growing in chains they will grow as a single cocci. Experimentally, we have observed a number of facts that might have led some men to say that all pathogenic germs come from the same specie. We are all aware of the fact that the anthrax germ remains ever as an anthrax bacilli. It may lose its virulent properties and may also grow in a filamentous form, it may cease to form spores, and various other changes might take place, but it does not go into another specie, neither will it produce any other disease than that known and produced by the anthrax bacillus. The virulent properties of all micro-organisms necessarily depend to a more or less degree upon their environing conditions.

It has been shown that any cells once possessed with the vital function can be made to grow when the physico-chemical conditions are present. In the experimental work of Leo Loeb, he found it

possible to grow epithelial tissue in blood serum and agar, while it did not grow great quantities, still the development was extended enough that it enabled him to study the variation from the normal.

It was observed that pigmented epithelium would grow in the usual way. However, this tissue will develop showing all the characteristic appearance of regeneration and degeneration, still it is shown in most all cases that the true natural environments are absent. Thus the possibilities of change in bacteria.

For a number of years the differentiation of certain groups of bacteria, one from the other, has been accomplished more generally by physiological rather than upon morphological characters of individual bacteria, or the appearance of the colonies on artificial culture media such as agar or gelatin, the endless difficulty in separating allied forms. This resemblance of so many different species has given rise to the belief in the interchangeability of these forms, but when studied from a physiological standpoint this apparent phylogenetic relationship will disappear. The physiological relationship and differentiation of various micro-organism of the oral cavity (which is the main gateway to the human body) has received but little attention with regard to their functional activities on the rest of the body. The morphology of bacteria is quite unreliable. Their cultural appearance on various medias is not always to be depended upon.

It is always necessary to study the physiological phenomena of bacteria in order to demonstrate their chemical and pathological possibilities.

In the study of groups of bacteria like those found in the colon, there has been a great deal of work done on such well known bacilli as the typhoid and the bacillus coli communis. This last named micro-organism was first observed by Escherich. It will grow as a rod-shaped bacterium, also as almost coccus form the variation in length of the rods is usually influenced by the media and the age of the cultures. It grows well on the ordinary media, and at room temperature. They form gas in media containing carbohydrates.

It has been found when grape or milk sugar is fermented by the germs there is produced three well known organic acids, namely, formic, acetic and lactic acids. Oppenheimer claims to have demonstrated the presence of about 70 per cent of volatile acid, and 30

per cent non-volatile acids. When this micro-organism is grown in media containing peptones, which must necessarily be the source from which it will obtain its nitrogen, if to this media be added $\frac{1}{2}$ per cent grape sugar there will be produced levorotatory lactic acid. This chemical process has been observed in about three different forms of the coli bacilli and the bacterium Tyhi.

In this connection there is a very interesting biological phenomena, for it has been experimentally demonstrated that if ammonia be used as a means of obtaining nitrogen only one of these coli bacilli will produce this levorotatory lactic acid, while the other two in this group will produce a different lactic acid known as dextro-rotatory. In the process of breaking up media containing peptones indolis always produced, also H_2S . There are periods in the life cycle of the bacterium coli in which they will ferment cane sugar with the production of carbonic acid gas; there is also a time when a chemical substance will produce iodoform. The chemical action of these forms known as belonging to the true coli group can only be differentiated from other groups found closely allied to them, and these are frequently mistaken for the coli bacilli. This colon group only ferments dextrose and lactose with gas formation, but saccharose has been classified by Gartner in a number of micro-organisms that have the morphological and some culturae appearance of this so-called colon group. This so-called Gartner group will not ferment lactose or saccharose, neither will they form gas or acids in this group. Hiss has placed such bacteria as psittacosis as the para colon paratyphoid bacillus typhy. Murium bacillus icteroids. There is beyond question certainly difficulty met in determining the difference between many of these forms.

In the study of the contents of intestinal canal in seventeen children, by John C. Cook and myself, we isolated nine different forms. The characteristic physiological function was different and yet the appearance seemed quite the same. Indol was present in 42 cultures out of 57 tested; those grown in media containing peptones H_2S is produced. There have been a number of different medias suggested for the differentiation of the typhoid. From the coli bacilli many of these medias were used in our work on the intestinal bacteria. The Holy method modified Elenor this media was not altogether satisfactory. We then took up some method suggested by Hiss be-

fore the American Association of Pathologists and Bacteriologists. This has unquestionably simplified matters so far as I have used this culture media in examination of the city water. It has proven by control test to be a simple and accurate method. Traces of urea were found in some of these cultures. Some number of the colon group are found in most all water suspected of typhoid. Out of 48 examinations of the city water for typhoid germs the coli bacillus was found 33 times; typhoid 17 times; the staphylococcus pyogenes aureus 11 times, and albus 6 times. The variability of the colon group is very interesting from a biological and physiological standpoint of any bacteria found in the human subject. They have been found in connection with most all disease processes.

THE ETIOLOGY OF MATRIMONY.

Matrimony is a pathologic conditior. due primarily to the presence of two distinct bacilli, the Bacillus Love and the Bacillus Soft. The Bacillus Love is the true bacillus, and in shape may resemble anything from a thirty-cent hat to an automobile.

The chief characteristic of both bacilli is that they sometimes wax fat on nothing, and at other times dry up on everything. Acting upon the organs collectively, the Bacillus Love invariably produces a permanent state of cheer and restfulness, with occasional mental eruption, more or less violent. The Bacillus Soft is temporary in its action, at first giving stumulus to the system and warmth to the soul, which causes this pseudo bacillus to not infrequently be mistaken for the Bacillus Love. However, this stimulus rapidly turns to depression, the warmth to chill, and internal disturbances occur, followed by the entrance into the system of the dread Bacillus Divorcicus.

There is no known germicide that weakens the activity of either of these bacilli, as they seem to be impervious to thermal changes, although they multiply more rapidly under heat up to a certain temperature; yet various cases are on record showing unusual growth under frigid conditions. The smoke from a certain plant (procurable in all climes) known as the Mother-in-Lawicus, when allowed to permeate through a house, is often effective in sapping the strength of either bacillus.

The Bacillus Love is impartial in its attacks, burrowing into the hide of a six-dollar clerk just as ferociously as it would into a railroad

president; it gnaws its way into the soul of a bone-headed gum peddler with keen relish, and turns up its nose at a banker's daughter. Tapped with an instrument it will sometimes ring out like a silver dollar.

The Bacillus Love belongs to that class of rare bacteria that wants little and gives all. The Bacillus Soft is the direct antithesis of the true bacillus—it gives little and wants all. When the system is thoroughly impregnated with either bacillus, a pathologic condition is generally induced known as Matrimony. Matrimony, in itself, is harmless, but the numerous tendrils which grow from it anastomose into a tangled mesh or network, which often casts shadows over the avenues leading to happiness, and makes walking difficult and hazardous.

This is no child's disease, like measles or croup, but a pathologic condition that has furrowed the brow of masterminds, and glistened the pates of industrial goliaths.

Many peculiar phenomena are noted in the action of Matrimony on male adults. Before the entry of the Bacillus Love into their systems, simple tasks like preparing breakfast, washing dishes, making beds, etc., were unknown and undesirable, but after succumbing to the attacks of the busy bacillus, these simple tasks became accomplishments, and a pleasing delight seemed to be experienced in the performance of them.

In the female adult the same peculiar phenomena are noted—with variations. Before the attack of the bacillus some women can perform eight hours' daily labor with a song and a smile, but after the attack they develop a muscular paralysis of the back at 6:30 or 7 a. m., rendering them helpless and necessitating two or more hours further sleep.

However, with due respect to all of the foregoing, we must concede that Matrimony is a charming disease, a beautiful blessing from heaven bestowed upon the chosen, even though the chosen are few. In conclusion, we doff our hat to this nimble-footed bacillus, and cheerfully say—"Welcome to our city."

ORIGINAL CONTRIBUTIONS

TOOTHsome TOPICS.

BY R. B. TULLER.

You ought to see Pa.

He's just spreadin' hisself.

He's got a new hat and some gloves, and has had his overcoat fixed over so's it looks like new.

Pa says if a man's a perfeshinal man he's got to keep up 'pearances.

Ma says that's right; but she'd feel better if she was a man, perfeshinal or common, if she had a couple of dollars in her pants, when she went out to show off.

Pa he says he would have if he didn't have to keep handin' out fer things so much; and Ma says, "If you gotter keep havin' and eatin' you gotter keep handin'."

But Ma she wants Pa to look nice and perfeshinal and she keeps his pants creased for him, and his good close hangin' on a form; and when he goes down to dental meetings she sees that he is all O. K., and says, "There, now, you look like reddy money if you haven't got more'n car fare."

An' you bet she was proud of him when he come home jest 'fore New Years, and had been 'p'inted on a committy. And Pa was proud of hisself.

"What's the committy?" ast Ma, and Pa sez, "Nercrology." "What's that?" ast Ma, and Pa he sez, "Well, Ma, that's a scientific name that I don't know as I could make you understand if I tried."

Then Ma she got bizzy with the dictionary, and after awhile she sez, "They ain't no sich name in the book."

Then Pa he looked and he says, "You've got the wrong place. It's under 'n-e-u,'" and they flopped over and Ma sez, "There it is, aint it; but they ain't any 'c' in it. It's neurology—science of nerves."

Well, I guess they had their nerve to put you on that. What do you have to do, anyway?"

Pa he didn't say, but he sez, "Give me the book," and then he run his finger up one page and down the other and bimeby he sez, "Here it is now, N-e-c-r-o-l-o-g-y."

"Well, what's necrology?" ast Ma; and Pa slammed the book shet an' sez, "Ma, you are the pryin'est woman I know of. I told you you wouldn't understand if I told you. It is *mortality*; now do you know?" And Ma sez, "I guess I know 'bout as well as you do, when you hatter look it up." And Pa he jest walked off. All the same, Ma's proud that he's got a office.

There was 2 hull days last month when Pa jest shet up shop and went to some dentist doin's he called clinnicks—some place where he said a lot of dentists got together and done stunts. Pa said his stunt was to look on and git p'inters and things, an' he come home with his pockets an' his hed full, an' he gave me 'bout 9 bottles of malted milk. Gee! Said he didn't have ½ pockets nuff and hatter make a bundel.

Even sence then he's been monkeyin' with meltin' up stuff in some plaster in a brass ring with his blow-pipe; and when he gotter melted he'd take a wet pine block and cover her up quick and hold her down; and then after a little when he'd take the block off he'd say, d—— (darn) the thing!

And I ast him, "What you 'fraid of Pa? Does she get so hot she lible to jump out or bile over if you don't git the cover on quick?"

He sez to me, "No, sonny; I'm trying to cast an inlay in white metal. That's all there is to dentistry now. Cast gold is the hull thing. Purty near every feller at the clinnicks was castin' gold inlays, and with a different machine; and each was the best there was. You needn't tell Ma, but I was jest going to buy one that cost \$100.00—a peach—when a feller he gave me a hunch that I could make 'em without any machine the way I'm doin' now on'y I ain't a-doin' it. Don't know why. I'm on'y usin' cheep metal to spearment with."

Then Ma come in and he 'splained to her what he was tryin' to do. Ma's got a hed on her all right, and she cawt on to the scheme in a minute. "What's that your usin'?" she ast. "Lead?" And Pa said it was some stuff a feller gin him to try—low fusing stuff.

Ma sez, "Why don't it run in when you got it melted?" And Pa

said it hatter be forced in with steam or com-pressed air or somefin, and he 'splained that he hatter make steam with a wet board held on top of the hottened flask.

Ma sez, "Joel, your stuff ain't hot nuff to make no steam," and Pa says, "Well, now, wouldn't that frost you! Gess you are right."

Well, sir, Pa, D. D. S., cast and cast and cast, and never cast a thing. It wouldn't go. I sez, "Push it in wit your t'um, Pa," and he says, "Sonny, you have give me a hunch," and then he took a piece of wet rag and rapt it 'round his t'um and nex' time she went down in all O. K.

But when Pa tried that on gold with a wet rag the gold was so hot it spluttered and popped and little beads of gold went flying all over the office and none down the hole. Some beeds went down Pa's neck and cawsed him to separate hisself from some language, while he hopped around and patted his collar, his shirt front, his watch pocket and so on down to his 'nees and shins—quick time. I don't want to repeat what he said—on'y it was hot stuff, like the beeds. Then you oughter seen us all down on our nees a-huntin' gold beeds. We never got $\frac{1}{2}$.

Then pa told ma he hatter buy a machine to make 'em and the machine cost \$100.00.

Ma she said, "Joel, you get one all reddy fer gold, and I'll make yer inlay for you." And she did, by jest gettin' it red hot and clappin' on the wet board. that made steam and pushed in the gold.

Pa thot Ma ought to be a dentist, and he said if he had sum of John D.'s money he'd put her thru college; and Ma said, "What! tainted money?" And Pa sez, "Oh, shaw! What's tainted 'bout it?"

An' ma she jest give pa a smart look, like she does some times, an' she says, "Joel, 'taint mine, an' it taint yours."

Now Pa's invented a machine of his own and he says it's all right, too, an' that it'll be us for a automobeel next spring. Gee! I hope so. He says the machine he's goin' to make can be put up for a dollar cost and he can sell wagon loads of 'em for \$20.00 a piece spot cash or \$25.00, \$5.00 down and \$5 a month for 4 munts. Pa's going to call his the "Sinch."

Ma says its a sinch that he hasn't got it *yit*, and she'll take stock in the Auto when she sees a movin' picter of it out in front of the house and heers it honk, honk. I don't like Ma's leary. She's all the time leary 'bout things.

A decorative horizontal banner featuring the word "EDITORIAL" in a bold, serif font. The banner is flanked by two crossed dental instruments, likely a dental mirror and a probe, which are integrated into an ornate, scroll-like design. The background of the banner has a stippled or dotted texture.

EDITORIAL

Dental society organization is the leading work of the dental profession of this country, especially is this true of those who have a lasting interest in the dental profession. For the last two or three years this seems specially true in Chicago. But if one will review with a critical eye the work done in the profession outside of Chicago it would seem that throughout dental activity the association work for the past year has been phenomenally great.

Since the reorganization of the Illinois State Dental Society there has been renewed effort throughout the middle West to more completely organize the dental profession of this country. A number of states have attempted organization under the plan of the Illinois State Society. From the committees that have been appointed from various State Societies we can readily see how completely the various states will be organized into the local and then into the State Society, with practically a complete organization of the profession in the various states. After that, I presume, we must consider ourselves about as completely organized as we will be for many years to come. But I don't know but that is about as much as we may hope to accomplish from purely a technical standpoint, because it has been demonstrated, I think beyond any question of doubt, that the smaller Societies, provided they can keep up the interest of all of their members, can really accomplish more for dentistry, as an art and science, than they can in a large, unwieldy body in which a complete interest cannot be held all the time.

In Society work, and especially that of dentistry, one of the main, and perhaps one of the greatest features, is for each one to feel that he has gained some knowledge regarding the practice of his profession. In a communication of some time ago I had occasion to speak on scientific knowledge and its relation to the profession in general, and there I tried to bring out the point that there are two classes of science; the theoretical needs of a science, as well as the practical

science itself, in other words, it is nothing more than putting into practice certain scientific facts.

In the communication above referred to I mentioned how we needed scientific investigation, and what a great benefit it had been to the dental profession, and that really when we look back over the past accomplishments in dentistry the only thing that lives and perpetuates the life work of generation after generation is that which is based on truly scientific facts. And today what we need most of all is some way or other by which the work of scientists can be carried on to a more complete explanation of certain phenomena that now exist in the minds of the general practitioners. Every practicing dentist is asking for farther explanations of certain pathological or certain therapeutic principles.

When we consider that the dental profession is not very old, and that it has achieved much in the progress of the professional standing, still it is important that we should not lose sight of what has made some of the true advances of the profession, also we should not forget that these advances have been made by personal efforts of certain individuals, regardless of any contribution from outside sources. There are three or four institutions in the United States where they pay the teachers a small salary for teaching dental students, but those teachers have not contributed any more to the profession than those who have practically worked their way and made contributions from their own personal effort, as well as a certain amount of their income, to supply themselves with the necessary equipment to follow up any line of research that they may want to work out. It would seem that these institutions of learning that have a certain income, or at least can contribute something over the actual income of the student body, would try to employ one or two persons who are deeply interested in scientific work and let them carry on a certain amount of research in connection with their teaching, thereby benefiting their institution as well as the profession. But up to the present time, with but very few exceptions, no man has had a sufficient contribution to justify him laying aside his practice as a means of making his living, and contributing his best time to reading and research. It is of great importance to any institution of learning to have someone who can and does have a taste for accomplishing something beyond the very routine of the work of instructing, just from the plan of gathering up a few things

that have been said by someone else and handing them over to the individual who is to practice in the future, without ever having any information as to the future theoretical scientific knowledge and what can be accomplished by a closer study of certain scientific problems.

The advancement of science in the profession of dentistry cannot find the best expression in dental society work, because the average practitioner is not interested in the science itself; all that he can necessarily be interested in is what he can do with science and how he can best adopt a principle of scientific thought to the practice of his calling. Therefore society organization and the practical application of association work to the needs of the everyday practitioner is about all that can be accomplished. Broad-minded specialization in scientific investigation is of the utmost importance. On the other hand, one-sided specialization in scientific investigation is a thing that should be avoided as far as possible, because it is a recognized fact that if we theorize too much we may get into unproductive fields for applying them to the needs of the general practitioner.

Then it is important for the profession of dentistry to look a little ahead of the present and see what is going to be accomplished by a complete organization of the dental profession into local and then into state societies. Can we advance the theoretical and the practical needs of the profession by the systematic organization? I would say that we need in this country now, for perhaps the first time, is an organization among dentists that deals solely with research work. There are a number of men who have and who are doing research work, and unless those who are doing this class of work can organize in some way that they may know more particularly of each other's efforts in the line of research, they will become mere problem workers in special lines and cannot thoroughly understand the needs of the broader side of the specialties even in research. Therefore it seems time that those who have special problems to work out should attempt to meet at some special point and go over their work together and submit what they have done to those who are following up a line of research, probably in some other specialty. I merely mention this with a hope that we may at some future time have an organization of this character.

G. W. C.



ABSTRACTS AND SELECTIONS.

THE ARMY MEDICAL DEPARTMENT.

The bill (S. 1424) to increase the efficiency of the Medical Department of the U. S. Army was reached on the Senate calendar on January 16. The bill was passed over at the request of the senator from New Hampshire, Mr. Gallinger. In the House on January 20 the bill was announced as next in order on the calendar. Mr. Bulkeley asked that the bill be allowed to go over without prejudice, and it was so ordered. In the Senate on January 14 Mr. Bulkeley submitted the following:

Intended amendment to the bill (S. 1424) to increase the efficiency of the Medical Department of the U. S. Army, viz.: After the word "law," at the end of Section 9, insert the following:

That to the Medical Department of the Army there shall be attached a corps of dental surgeons, which corps shall not exceed in number the actual requirements nor the proportion of one to one thousand authorized by law for service in the Regular Army, and all original appointments to said corps shall be made to the rank of first lieutenant.

Section 2. That the appointees must be citizens of the United States, between twenty-two and thirty years of age, graduates of standard American dental colleges, of good moral character, and of unquestionable professional repute, and shall be required to pass the usual physical examination and a professional examination which shall include tests of skill in practical dentistry and of proficiency in the usual subjects in a standard dental college course: Provided, That dental surgeons attached to the Medical Department of the Army at the time of the passage of this act may be eligible to appointment, three of them to the rank of captain and the others to the rank of first lieutenant, on the recommendation of the Surgeon General, and subject to the usual physical and professional examinations herein prescribed; Provided, That the professional examination may be waived in the case of dental surgeons whose efficiency reports and entrance examinations are satisfactory to the Surgeon General; and

the time served as dental surgeons under the Act of February 2, 1901, shall be reckoned in computing the increased service pay of such as are appointed under this act.

Section 3. That the pay, allowances, and promotions of dental surgeons shall be fixed and governed by the laws and regulations applicable to the medical corps; that their right to command shall be limited to the members of the dental corps and such enlisted men as may be assigned to service under the said dental corps; that their right to promotion shall be limited to the rank of captain after five years' service and to the rank of major after ten years' service; Provided, That the number of majors shall not at any time exceed one-eighth nor the number of captains one-third the whole number in the said dental corps.

Section 4. That the Surgeon General of the Army is hereby authorized to organize a board of three examiners to conduct the professional examinations herein prescribed, two of whom shall be civilians whose qualifications are certified by the executive council of the National Dental Association and whose proper compensation shall be determined by the Surgeon General; and the third examiner shall be selected by the Surgeon General from the contract dental surgeons eligible under the provisions of this act to appointment to the dental corps.

Section 5. That the annulment of contracts made with dental surgeons under the Act of February 2, 1901, shall be so timed and ordered by the Surgeon General that the whole number of contract and commissioned dental surgeons rendering service shall not at any time be reduced below thirty.

NUTRITION A FACTOR IN TOOTH DEVELOPMENT.

William J. Lederer, of New York, considers the relation of the teeth to systemic disease. All systemic pathological conditions affect the teeth. This obtains especially during the period of formation of the teeth in intrauterine life. Hence the care of the health of the pregnant woman is important to obtain the formation of normal teeth in the infant. We must have normal formative organs. Next we must have a normal nutritive fluid, that is normal blood. This is not a question of alimentation but of assimilation. We cannot get good teeth by feeding the mother on lime salts, but by a proper diet and

hygiene. The next important period is that from birth until the calcification of the permanent denture, that is up to 22 years of age. Here mother's milk, and later nutritious feeding of the child are important elements. The treatment must be that of prevention."

EDITORIAL COMMENTS.—We not only agree with Dr. Lederer that nutrition is a factor in tooth *development*, but we think also that the converse of this statement is equally true, *viz.*: that *malnutrition* is a factor in tooth *decay*. Members of the dental profession begin to appreciate the importance of the fact that "tooth troubles" are often but the local manifestation of some systemic disorder or constitutional dyscrasia. It is time that physicians also realized this fact.

The bony substance of the tooth (its dentine) is permeated throughout its matrix with microscopical nerve filaments and blood vessels leading from the tooth-*pulp* (or marrow) which is well provided with vessels from the general circulation, from which the entire tooth structure receives its supply of nutriment. It was once thought that the tooth-pulp was simply a formative organ and that its mission ended with the formation of the tooth; but it is now known to serve the purpose of marrow to bone, and that the dentine itself is a living tissue subject to deterioration and regeneration the same as other vital structures.

It will at once be seen that if the blood supply to the dentine from the pulp be cut off in any way, as from obstruction in the pulp vessels, or if the blood itself be vitiated—the bony substance of the tooth must necessarily be affected like other tissue and be subject to decay. While, of course, local irritants, such as acids, alkalies, hot and cold substances, fermented food products, etc., to which the tooth is constantly and directly exposed, very often serve as the immediate cause of decay, nevertheless, in many cases, the local disturbance will be but the indirect manifestation of a general malnutrition and vitiated blood-supply.

Inasmuch as the beginning tooth-trouble is frequently seen by the physician for *first aid*, it behooves us as scientific medical practitioners to study into the possible systemic causes and remove such cause by proper general treatment, instead of sending the patient, without examination, to the dentist for treatment—unless the cause of the trouble is obviously local and only local or mechanical measures demanded. The dentist, in reality, should be considered a medical

tooth specialist, like other specialists now recognized as such, as the oculist, gynecologist, etc., but until he is so recognized, and prepared by a course of medical study to treat the patient as well as the tooth, the general practitioner of medicine should be entitled to properly diagnose and rationally treat all tooth disorders due to systemic causes—as gout, rheumatism, malaria, anæmia, etc. In short, the doctor should not forget that the teeth are exposed to constitutional etiological factors the same as other bodily structures.—*New England Medical Monthly*.

DENATURED ALCOHOL FOR ANNEALING GOLD: A SUGGESTION TO THE DENTAL SURGEON.

Those dentists who practice in cities may use the Bunsen flame for annealing gold foil; or they may use electrically produced heat for this purpose; but many city practitioners prefer the alcohol flame and all country practitioners are obliged to use it.

Therefore the prohibition of the sale of alcohol except upon a physician's prescription, will inconvenience dental surgeons in all States or localities where prohibition is in force; and our lawmakers are open to criticism for overlooking the interests of the dental profession in the making of prohibition measures.

After January 1, 1908, in Georgia, for instance, doctors of dental surgery will not be able to procure alcohol for alcohol lamps or other purposes upon their own prescriptions; and they will be obliged to send out of the State to get alcohol with which to generate the heat necessary for annealing gold for filling operations, unless we can discover a satisfactory substitute for ethyl alcohol for this purpose.

What are the requirements of a satisfactory substitute? (1) It must be capable of producing during combustion uniform and intense heat; and (2) it must not liberate products of combustion which will impair the cohesiveness of the gold.

The heat producing power of wood alcohol (methyl alcohol) is sufficient to anneal gold and is only about 10 per cent less than that of ethyl alcohol. But what about the products of combustion of wood alcohol? Is the wood alcohol flame likely to deposit matter on the gold which will destroy the cohesive property?

The products of combustion of wood alcohol are the same as the

products of combustion of ethyl alcohol, except that the wood alcohol products are less. We may represent the rapid oxidation, or burning of wood alcohol by the following equation: $\text{CH}_3\text{OH} + 2\text{O} = 2\text{H}_2\text{O} + \text{CO}_2$. And we may represent the combustion of ethyl alcohol thus: $\text{C}_2\text{H}_5\text{OH} + 6\text{O} = 3\text{H}_2\text{O} + 2\text{CO}_2$. It will be observed that the oxidation of the grain alcohol per molecule produces three times as much water and twice as much carbon dioxide as does the oxidation of the wood alcohol; yet the wood alcohol molecule is considerably over half as heavy as the ethyl alcohol molecule. So we must conclude that the wood alcohol is preferable to grain alcohol for the purpose under discussion, in so far as the deposition of moisture on the gold is concerned, though this difference is probably immaterial because the moisture is at once dissipated by the intense heat of the flame.

In view of the foregoing facts it is reasonable to believe that a mixture of wood alcohol and grain alcohol would be a better source of heat for annealing gold than either of these alcohols used separately. So it occurred to me that denatured alcohol, which is ethyl alcohol poisoned by the Government with 9 per cent of wood alcohol and 1 per cent of benzine (to render it unfit to drink), would be a satisfactory substitute for ordinary grain alcohol for annealing gold. Therefore I recently instituted a series of practical tests of the matter by experienced dentists. The results were highly satisfactory, and demonstrated that denatured alcohol is fully as reliable as ethyl alcohol alone for tempering gold foil.

The wholesale cost of denatured alcohol is only about twenty-five cents per gallon; so that a seeming hardship on the dentist involved in prohibition laws turns out to be a blessing in disguise.—*Medical Concensus.*

SPECIALIZING.*

BY FRANK A. DILLIE, D. D. S., GREELEY, COLO.

It has been suggested by one of our philosophers that "writers do not write what they think, but what they think people think they think." This may be true where it concerns philosophers, and writers, but dentists who are not writers, but do write, write not what they

*Read before the Weld County, Colo, Medical Society.

do, but what they wish they did, and what they wish others to think they do. So much for an introduction and excuses for any seeming narrow mindedness.

In this age of hurry and quick methods, advancement and accomplishments are not only beneficial, but if one wishes to retain his self respect they are positively necessary.

It is said opportunity, as it advances, has many handles, many possible places to grasp and hold for your own; but after once having passed it assumes the character of a greased pig, and unless one is phenomenally active it is a lost opportunity. In this age of development and perfection it is essential to the dentist and the doctor to be everlastingly watchful and ready to grasp anything that looks like opportunity; and at the same time to cultivate a certain amount of judgment so as to be able to discriminate between the good, bad and indifferent. It would seem that the magnanimous invitation of the Weld County Medical Society for the dentists to affiliate, is in a certain sense an opportunity the dentists should appreciate, and try to be a benefit to the society, rather than a toleration. When we know that the busiest and best men in professional life are apt to be the most active in society work it behooves us to become interested, as this is most surely an opportunity.

Dentistry itself is not a specialty of medicine and probably never will be. For the dentist with but the degree of D. D. S. to assume he is a medical specialist is presumptuous. It is possible for the D. D. S. to become a specialist of medicine only when he can write M. D., D. D. S. after his name. We have a few and the tendency should be in that direction, especially so to those who are sensitive to the professional standing of dentistry.

If the dentist would become better equipped theoretically and know the why and wherefore of what he does, the work would be more interesting and less mechanical. Dentists upon graduation, as a rule, are mechanics. Where one becomes more or less proficient in therapeutics, chemistry, surgery, etc., it is apt to be acquired later. How one can expect a young man to become learned in theory at the same time he is making his first gold filling, plate, or treating an abscess, is a mystery. If he is any good at all, some branch is bound to suffer, and the more proficient he becomes in in one, the less he is apt to excel in the others; and at the same

time he is apt to be a better and greater man than the one who can accomplish all rather indifferently.

Dentistry is a profession, no doubt, but it is a mechanical profession, not necessarily a learned one. If the time ever comes when the dental colleges are run for the benefit of humanity and less for the stockholders, we shall have possibly a profession where theoretical preparation is more at a premium. It is positively necessary we have both if we wish to be classed as a learned profession. Some say raise the requirements and you will keep good men out, but that is a poor argument; raise the requirements and you will encourage the good men to go into it.

The old adage "Boys are judged by their company" holds good in professional life as well. The more we associate with good men, the better professional men we become; and nowhere will you find the good so abundant as in these societies.

In all trades, professions, or work of any kind, whether it is housework or farming, there are certain portions of the work that appeal to the individual stronger than others; and that portion, you will notice, is more thoroughly understood, and is accomplished with both confidence and a song or a whistle.

To get the best results there are four or five opportunities for specializing in dentistry. Orthodontia, practiced almost exclusively by specialists nowadays, is operated with unlimited opportunities; crown and bridge work is fairly screaming for conscientious specialists; extracting, oral surgery, and, last but not least, prosthesis, the construction of substitutes for teeth which are lost, where crown and bridge work is not indicated or is possible.

To be successful in any line of mechanical work one has but to be skillful and enthusiastic. Skill is but the result of care, and love for the work. Some, they say, are born skillful; they are but naturally careful and fortunate in having entered the right field; others acquire skill; they simply cultivate carefulness and develop good judgment. Hence, success for the specialist is carefulness attained by will power, and seldom are specialists produced except by love for the work.

Plate making today is anything but a success. When we consider the almost phenomenal strides made in other branches, and then consider the lack of advancement made in plate work, it is discour-

aging and positively humiliating, for beyond a doubt no advancements have been made in prosthesis. There is always a cause as there is a result. The cause of our degeneration in this branch, no doubt, was the discovery of vulcanite and the introduction of the commercial laboratory.

Before vulcanite was introduced, metal formed the base, and it required a mechanic for its manipulation; now how different; it requires but an impression and a bite, and the rest is done by assistants or laboratory men.

The busy operator positively cannot afford the time necessary for plate making; and without specialists he is compelled to do the best he can, which is as little as possible. The inclination tends that way at least. If the majority of operators, and crown and bridge makers, had to do all the detail work connected with plate making, I am sure they would encourage such a specialty; but the commercial laboratory makes plate work for them not only possible, but fairly lucrative. Nevertheless, the work so performed is indifferent and a detriment to the profession.

As conditions are today the commercial laboratory, no doubt, is an evil to all good, skillful and conscientious men, who would experiment and put more time and thought in their work. They would find difficulties every day in soldering, backing, grinding and articulating that would have to be overcome. It is these little or large difficulties that make laboratories possible. One man has developed the necessary skill and sells it to the ten other men who are lacking either through indifference or inability. If a man is forced to do a hitting he will, but under compulsion. The man who does unnecessary labor for ethical reasons, or a desire to become more proficient, and the members of a profession who constitute these exceptions are the great and respected men we admire.

The commercial dental laboratory may be excused under the supposition that it is a necessary evil. The idea being that when an evil becomes necessary it ceases to be an evil.

There is plenty of opportunity here in Greeley for a prosthetic specialist if he could obtain the endorsement of the dental and medical profession.

There is no function of the body that is of greater importance, or that influences all other functions to the extent of proper mastication.

tion of food; and it is reasonable for the one interested in this line of work and that to assume that proper food properly masticated is the all important in preventive medicine; and by keeping the body in condition it can resist disease.

Prosthesis is the most important specialty in dentistry, and at the same time it is the least understood; by specializing, and by specializing only, can we ever hope to attain the results that are desired and humanity should demand.

If we had specialists in this branch it is reasonable to believe vulcanite would be used only in temporary work and would be considered more or less an emblem of incompetence. Gold would be more generally used and no doubt aluminum would be as common as vulcanite is today. The failures of aluminum, where not due to faulty manipulation, swaging, etc., are rare. If we gave proper consideration to the failures of vulcanite we would cease considering the failures of aluminum. Vulcanite is a non-conductor of heat, consequently keeps the tissues unduly heated, and causes undue resorption. To scientifically make a vulcanite plate requires as much labor and skill as any work required of the prosthetist. Rubber vulcanized between metals, such as tin foil, possibly gives a glazed surface that is hygienic. In that respect it might somewhat equal aluminum; but at the same time we cannot overcome the objection of its being a non-conductor of heat, to say nothing of the advantage of the uniform thickness of aluminum or a metal base.

Porcelain is undoubtedly the ideal material; weight is its only disadvantageous feature. Porcelain plates are positively hygienic and are a source of both comfort and pleasure to the tissues of the mouth.

Gold is within the possibilities of all the dentists and should be suggested at least. Physicians should encourage its use and demand it for their patients where it is possible. If this idea could be impressed upon the physician (metal plates), it would be of great benefit to those who in the future are compelled to wear artificial dentures. It is quite true that if physicians who are inclined toward oral cleanliness should investigate for themselves, and not be influenced by what they are told, they would agree with the assertion that vulcanite plates are not only filthy, but a disgrace to a progressive profession.—*Dentist's Magazine*.

SURGICAL CLEANLINESS.

BY DR. JOHN SAYRE MARSHALL, SAN FRANCISCO, CAL.

Surgical cleanliness is the acme of all cleanliness. Ordinary cleanliness and surgical cleanliness are as different in their intensity as moonlight and sunlight, and there is no "moonshine" in this statement.

Articles that have been rendered ordinarily clean are far from being surgically clean. Your hands for instance, after an ordinary washing, are still far from clean, as you can easily ascertain by making cultures from scrapings of the epidermis from any part of them, or by passing a probe under the nails, and with this make a culture. It is impossible to render any portion of the surface of the human body ABSOLUTELY clean, or in other words, ASEPTIC. By proper methods, however, it can be rendered APPROXIMATELY clean, so nearly, that under ordinary conditions there is not much danger from infection.

The fact, however, can be demonstrated, that by no method known to science can the hands be rendered ABSOLUTELY ASEPTIC. Surgeons are therefore in the habit of wearing sterilized rubber gloves in all important operations to prevent infection from this source.

The laboratory proofs, that suppuration, septicemia, pyemia, erysipelas, ulceration, etc., etc., arise from the infection of the tissues with pyogenic micro-organisms, are now considered so complete and conclusive that no really unbiased mind can doubt them, while the clinical proofs are equally convincing.

Cleanliness is, above all other things, necessary to a successful treatment of wounds. To be surgically clean means, to be germ-free. This is just as important to the dentist as to the surgeon.

In discussing this subject we will divide it into four sections or heads, viz., THE ENVIRONMENT, THE OPERATOR, THE ARMAMENTARIUM AND THE PATIENT.

FIRST. THE ENVIRONMENT.—Under this head belongs the operating room, furniture, floors, walls, plumbing, light, ventilation.

The operating room should be so constructed that it can be readily cleaned. The ideal operating room should have a marble

or cement floor, marble or cement wainscoting and plastered walls and ceilings which have been thoroughly painted, of course, in attractive colors. Chicago has an office building for general and special practitioners of medicine, surgery and dentistry, modeled upon this plan.

The furniture should not include carpets or rugs; rubber mats should be used instead of these. Linoleum is the best to cover wooden floors, as this can be washed ad libitum. Chairs, lounge and tables, if employed in the operating room, should be without upholstery. If operating chair is upholstered cover it with clean towels. If wood furniture is used, it should be highly polished.

The plumbing should be as perfect as science can make it.

The light should come from above in the form of sky-light, combined with a front light connecting with the sky-light, but not coming nearer to the floor than the top of the wainscoting. This, my experience has taught me, is the best that can be devised. South exposure is the best. Sunlight is necessary to good health and good sanitary conditions. Light and oxygen kill some micro-organisms. North light has its advantages, but it is not equal to a south light.

The ventilation should be so arranged that fresh cool air can come in near the floor and pass out near the ceiling. The best sanitary conditions should always prevail in this room, both in the interest of yourselves and your patients. A dirty or badly ventilated operating room is dangerous to health and an abomination in the sight of cleanly, decent people. Get rid of all odors that suggest unpleasant features of your calling. Be sure that your cuspidor is kept clean and free from all bad odors. Your patients will judge you by your surroundings. Proper environment, therefore, is an important factor to your success. Unsanitary surroundings breed disease and promote infections. Dirt and dust have no place in the operating room of the dentist and the really careful operator will not tolerate it, for his success in treating disease will in a considerable measure depend upon his environment. Failure to cure abscessed teeth and other diseased conditions of the oral cavity is often due to failure of the dentist to employ the technique of surgical cleanliness.

SECOND. THE OPERATOR.—Can he make himself surgically

clean? No, but he can approximate it by careful and painstaking observance of the technique of aseptic methods. This has reference to his person in general, and to his CLOTHING, HANDS, MOUTH and BREATH in particular. Again, we reiterate the statement that to be surgically clean one must be GERM-FREE. How may this be approximately reached by the operator?

CLOTHING can be sterilized by proper laundry methods. Ordinary clothing may be covered by a sterile outer garment.

THE HANDS can be rendered approximately germ-free by careful cleansing with soap and hot water and by bathing in antiseptic solutions, alcohol, etc.

THE MOUTH, which from neglect, may become the most filthy and loathsome cavity of the human body, may with proper care be kept fairly clean, but surgically clean, never. The mouth is the habitat of many different forms of pathogenic micro-organisms. Miller found twenty-three varieties and this number has been raised by other observers to over thirty. Every pathogenic micro-organism known to science has been found in the human mouth, but they do not all thrive in this environment. The careful surgeon, when operating, especially upon any internal viscera or extensive external wound, covers his mouth and nose with several thicknesses of sterile gauze for fear of contaminating the air by his breath, or by coughing or sneezing, as thus infection might be carried directly into the wound.

The breath is not only loaded with infectious cocci and bacteria, particularly under enforced expulsion as in coughing and sneezing, but it not infrequently has a more or less unpleasant odor. In many instances the latter is the result of bad habits, the use of alcoholic stimulants and tobacco being the most common. Let your personal habits be above reproach. Be clean in body, mind and heart. A bad breath will be a great handicap in building up a practice. I have known fine operators who were also cultured gentlemen lose their practice because of a persistent bad breath. Eschew foods that give you a bad breath, for instance onions, garlic, cabbage, crabs, cheese, etc. The infections of tuberculosis, tonsillitis, diphtheria, etc., can be readily transmitted by the breath from patient to operator or from operator to patient while sitting in the dental chair. These diseases are carried in the clothing, etc. Always breathe through your nose and never through your mouth when you are oper-

ating, as this is the only safe method. Nature has lined the nose with a peculiar mucous membrane, covered with ciliary cells, the cilia of which are in constant activity, having an outward sweeping motion. The mucous membrane is also provided with numerous small hairs at the entrance of the nose to act as a screen against dust and other foreign substances, and it has the faculty of secreting a thick, tenacious fluid which still further obstructs the entrance of these foreign substances while it has the property of rendering inert or destroying the micro-organisms which have gained an entrance to the nasal passages.

Because of the dangers to which a dentist is constantly subjected of contracting diseases from his patients he should strive, and that constantly, to maintain a robust, vigorous condition of health. More dentists die from tuberculosis and nervous affection than do the members of other professions. The nervous strain in the practice of dentistry is very great and many break down early in their career. It is only the man or woman whose physical condition is below par that need fear contagions or infections. The body, when in a perfect state of health, is not affected by contagions and infections, except when the pathogenic organisms are introduced in overwhelming amount. The phagocytic action of the blood-corpuscles in the healthy individual is very great, and large amounts of infectious material may enter the blood-current and no harm come of it. But let the general vitality be lowered from any cause whatever, bad habits, overwork, insufficient exercise, etc., and the vigor of the phagocytes is at once decreased. Under these conditions they do not destroy the micro-organisms which have gained an entrance to the blood with the same degree and rapidity as formerly, with the result that in a short time they are overwhelmed by the rapid multiplication of the bacteria and the accumulation of their poisons. This, in the light of the germ theory, constitutes disease.

THIRD. ARMAMENTARIUM.—All of the armamentarium of the surgeon and the dentist (namely instruments, dressings, bandages and drugs) are capable of being rendered aseptic, sterile, or in other words, **SURGICALLY CLEAN**. Various methods are employed to secure this condition. **HEAT, MOIST AND DRY. FORMALINE GAS**, various **ANTISEPTIC SOLUTIONS**. **STERILIZATION BY MOIST HEAT** is usually by boiling. Instruments are placed in a receptacle called a sterilizer

and the temperature raised to 100 C. or 212 degrees F. and boiled from five to fifteen minutes. A small quantity of sodium carbonate added to the water assists in the process of sterilization and prevents the instruments from tarnishing or rusting.

DRY HEAT is generally used for sterilizing gauze, bandages, cotton, napkins, towels, paper pellets and points. The temperature is usually from 120 C. or 248 degrees F. to 148 C. or about 300 degrees F.

FORMALINE GAS is more generally employed for fumigating rooms and hospital wards in which there is contagion or infection. Surgical operating rooms and infirmaries need to be fumigated frequently if they are used for pus cases.

ANTISEPTIC SOLUTIONS are commonly used to cleanse and sterilize the hands of the operator and the field of his operations. They are also used to sterilize instruments and for rendering bandages, gauze, cotton, etc., antiseptic, after having been rendered sterile.

The drugs usually employed for this purpose are hydrargium bichloride, in solution 1 to 5,000 to 1 to 1,000 in water. Acidum carbolicum in aqueous solution of from 2 to 5 per cent. Lysol in aqueous solution 2 per cent. Trickresol in aqueous solution 2 per cent and ethyl alcohol 95 to 98 per cent (proof) and boric acid in saturated aqueous solution. All instruments that are to be sterilized by antiseptic solutions should first be carefully washed with soap and hot water and then laid in the solutions for from 5 to 10 minutes. Instruments that have been used upon syphilitic patients should be first cleansed with soap and hot water, then boiled for from 10 to 15 minutes and then transferred to an antiseptic solution for from 5 to 10 minutes and then washed in hot water and dried.

In operating upon syphilitic patients the operator should always use rubber gloves, as a protection to himself. As a general precaution against dangers of infection, the operator should carefully protect all wounds and abrasions upon his hands with an impervious dressing, like collodion.

The saliva of some patients is exceedingly infectious, due to certain virulent ptomaines found as excreta of particular micro-organisms. Pus infections are also dangerous and should be carefully guarded against. The most virulent ptomaines to be guarded against by the dentists are those found in decomposing pulp tissue.

Inoculation with those ptomaines—as by simply pricking the finger with a nerve broach that has just been used upon a decomposing pulp may produce a virulent septicæmia or malignant œdema. Death has frequently occurred from such infections.

FOURTH. THE PATIENT—PROTECTION OF CLOTHING.—No patient that comes to the infirmary for treatment or to our offices is so clean that you could not, if you investigated the subject scientifically, find upon the clothing in the form of dust large quantities of infectious material settled upon it in the HOME or gathered from the STREETS.

This being the fact, the clothing in the immediate location of your operations should be covered with an aseptic sheet or towel as a protection against outside infections.

CLEANSING OF THE MOUTH.—The next step is to cleanse the mouth of your patient before beginning an operation. This is important, first to yourself as a protection against disease, and second, to your patient as a protection against auto-infection. Always insist that your patients brush their teeth before coming to you for an operation. If the patient comes with a dirty mouth, insist that they brush their teeth before you begin an operation. The first and most important duty of the members of the Healing Art is to teach the public how to prevent disease. Dental caries is a disease of ignorance and neglect. Our duty, therefore, is to educate the public and particularly our clientele that “clean teeth do not decay,” and that if the public exercised the same care in keeping their teeth clean as they do to keep their hands and faces clean, or spent as much time in cleaning their teeth as they spend in cleaning and manicuring their finger nails, the labors of the dentist along the lines of filling teeth and treating the diseases that are the sequelæ of dental caries would be greatly curtailed, while the public would be saved an untold amount of suffering, rendered more healthful, and decidedly more happy. I have had some large placards printed with these legends upon them: “CLEAN TEETH DO NOT DECAY,” and “DO NOT ASK THE OPERATOR TO TREAT YOUR TEETH UNTIL AFTER YOU HAVE BRUSHED THEM.” These are placed in the infirmary where they will meet the eyes of every patient. I started this propaganda of cleanliness in the army several years ago and it is surprising what a difference it has made in our service.

After the patient has brushed his teeth—and if he does not seem to know how to do this properly, show him the correct manner of doing it—let him wash his mouth with an antiseptic solution of listerine, glycothymoline, sanitol or any other pleasant and efficient solution. The next step in the preparation of the patient's mouth for an operation is to cleanse the teeth of all salivary deposits and polish the surfaces, making them as clean as possible. There is nothing that so increases the SELF-RESPECT of the individual as knowing that he has clean and wholesome looking teeth.

Booker Washington recently said when writing of his efforts to uplift the people of his race, "The greatest civilizing agent is the tooth-brush." It is a fact that people who have clean mouths have always clean bodies. But the reverse of this is not always true. I have seen many individuals who were the most exquisitely clean as far as their general appearance was concerned, who bathe twice each day, whose hands and finger nails were most beautifully cared for, but when they smiled, showed disgustingly filthy teeth, and whose breath reminded me of the polluted air which comes from the vent holes in the sewers of our great cities. Verily the public needs educating along the line of oral hygiene. I have perhaps used rather vigorous language in the last few sentences, but no more vigorous than the importance of the subject demands. It is sometimes necessary to shock people in order to get them to consider an important question upon which they have become careless or indifferent or upon which they are ignorant. I hope my words will stick in your minds and hearts and that you will become vigorous apostles of ORAL CLEANLINESS.—*Pacific Gazette*.

APPLIED ETHICS.*

BY DR. E. S. BARNES.

I understand full well the thin ice upon which I am skating when I seek to entertain you with a paper on the much hackneyed and abused subject of ethics. I thought long and earnestly as to the advisability of venturing on a paper of this character, and the more I thought the more reason I considered I saw for a paper of this character being presented.

*Read before the Washington State Dental Society.

There is much to be hoped for and attained in the practice of ethical dentistry; there is everything to be lost through a lack of observance of it.

I sometimes think we dodge the word ethics unnecessarily. Generally our dodging is simply an excuse for our failures. Our failures are largely the result of laziness and lack of moral backbone. And that is all that the word ethics means—"Morality." There are two classes of practitioners who are wearing the garb of ethics; that is the fellow who sees nothing in it, or at least never says so, except exorbitant fees, and that other man who is the bane of our existence wearing the ethical garb, but who never has time to treat his patients with common honesty—the man who is dishonest with himself, dishonest to his Alma Mater, dishonest to his patient and a disgrace to, and a millstone about the neck of the profession at large. The first a discouragement to the young men or women first assuming the responsibility of a practice—the latter doing his best to paralyze by his utter lack of appreciation of the responsibility he has assumed, or his wilful neglect to perform his duties, all efforts to place the practice of dentistry upon the level which belongs to it by right of the good it may do for humanity.

Already the attainments in operative and prosthetic dentistry have reached the stage where the vast majority of cases presented for our treatment may be helped if not absolutely and permanently cured. The next great field to be investigated probably will be prophylaxis, and I believe success will crown our efforts.

Right here, Mr. President and members of this Society, is where your essayist feels his utter inability to handle this subject. What would it not be worth for a few moments to be in possession of the logic and force of a Clay or a Webster to drive these things home to our innermost consciousness. Here we have pathological or abnormal conditions, be they results of disease or traumatism, that are present in a greater or lesser degree in the mouths of the vast majority of our people, and in our hands not only the responsibility but the means for the cure or at least their amelioration, and yet, gentlemen, we are not making good. And why? The only reason I can assign is the lack of "common every day honesty." We spend our time and money prosecuting the illegal practitioner of dentistry and heaping execrations on the head of the advertisers,

when we should be treating our case with good large allopathic doses, frequently administered, of common honesty. Gentlemen, until the line is more clearly defined in the practical use of the \$5.00 crown of the advertiser and the \$10.00 crown of the ethical man, we are not going to get and maintain the respect and confidence of our people. It takes just as much time to pick meat fibres from around a ten dollar crown without contact points and incidentally cuss the man who put it there, be he ethical or otherwise, as around a five dollar crown with the same condition. A poorly articulated ten dollar crown will not help the poor, overburdened stomach any more than the five dollar rapid fire crown. The poorly fitted band on your ten dollar bunch of ethics will injure the surrounding tissues just as much, hold just as much decaying food and secretions, emit as strong an odor and cause just as quick a loss of the tooth, and also loss of respect of your patient, as the five dollar one of the same stripe without the ethics.

We have been taught to educate our patients, so far so good, but it is all wrong. We are educating the wrong party to the contract. The reform should be of the "inside out" variety, not of the white sepulchre type. A couple of cases in point. A practitioner in the same building with me the other day had occasion to extract a lower third molar; the roots were cracked nearly their entire length; in the crown was a very poor amalgam filling; after the tooth cracked, the patient returned to his dentist, who, without removing the filling or attempting to discover the extent of the fracture or condition of the tooth, placed a gold band around the tooth. Some time after the tooth abscessed, and the patient, tiring of the trouble and suffering, thought he would change dentists, so on coming to my friend he decided to extract it, and found the mandible necrosed. He asked me how I accounted for the extent of the fracture, but I had no explanation; we opened the tooth and there we found a nice ripe bunch of cotton; had it been gun cotton it would hardly have done as much injury. The dentist who put this bunch of fireworks in this patient's tooth was a personal friend of the patient and a well-known dentist with a practice among a good class of people and rated No. 1 in the Commercial Agency's report, and yet he is guilty of a trick of this character.

Again, a patient was sent me some time since, with a tooth in

an abscessed condition. His dentist, an ethical practitioner, a member of our local club, had devitalized the nerve, but unfortunately had overlooked the little formality of opening the tooth up and taking care of the canals. Possibly the fact of his having only received \$1.50 for the operation of devitalizing a molar and filling the crown cavity had something to do with his poor memory.

Those of you who were present at our state meeting in Seattle two years ago will remember Dr. Platt, in talking of amalgam as a filling, said the principal cause of its failure was \$1.50. There may be some psychological sequence to this charge for a dental operation that is fatal to its success, but until my researches in this science have explained it to me these practitioners are guilty to my notion, not only of dishonesty, but of inexcusable negligence, and that should constitute criminal malpractice toward their patients and doing an inestimable wrong to a profession which they disgrace every time they are guilty of these things.

Now, in the language of our great countryman, "what are we going to do about it?" We stand convicted, we are caught with the goods on us, no use of denial, no use of excuses, no explanations will ever give back the lost teeth, compensate for the suffering, restore the distorted features, heal the overworked and insulted stomach, or dissipate and lull into "inocuous desuetude" the stomach of a malodorous breath.

Again we know the trouble, we think we have properly diagnosed the case, and we think we know the treatment that will, to repeat, ameliorate, if not in the end cure the case.

Let us get together; our Societies should be hotbeds of activity. Our best endeavors, our earnest, persistent, honest efforts for a better dentistry, a broader field of usefulness, a place in the respect of our people that the honest practice of dentistry is entitled to.

Those of you who read one of our popular magazines remember the story of the young mother who, having but one chance in a hundred of living for her only child, and the chance of dying in the success of a difficult surgical operation, said at the termination of the consultation, with the great mother love lighting her face, "Well, doctor, I know for the honor of your profession you will do your best." Such confidence as this we should strive to win and maintain "for the honor of our profession."—*Pacific Gazette*.

HARVEY E. HARRISON, M. D., D. D. S.

Members of the profession were greatly shocked by the news of the untimely death of Dr. Harrison, who died January 23 of typhoid fever, after an illness of only one week. He was 39 years of age and had just completed a year's service as president of the Alumni Association of the Northwestern University Dental School. He was also a member of the State Dental Society, the Odontographic Society and was a graduate of a medical school. Dr. Harrison was a descendant of William Henry Harrison, who was President of the United States. Deceased is survived by a widow and one son.

RESOLUTIONS ON THE DEATH OF DR. W. D. MILLER.

To the members of the Southern California Dental Association and the Los Angeles Association of Dental Alumni the news of the death of Dr. W. D. Miller came as a most sorrowful surprise. We had come to love and respect Dr. Miller profoundly for his noble personal character, and for his faithful labors on behalf of scientific dentistry; and in view of his past great usefulness we were expecting even greater results from his work in the future. We were rejoicing that while his life abroad had been crowned with honors never before achieved by a member of our profession, he had returned to his and our own land to be more intimately associated with us in educational work and genial fellowship; and it seems especially sad that his life should be cut off when he had barely set foot upon his native soil. And yet we have a feeling of gladness that death being inevitable, he should have looked his last upon the familiar scenes of his childhood, and be buried in the quiet cemetery of his forefathers.

Dr. Miller died at the zenith of his powers; his fame is secure; his life record will remain unshadowed forever, constituting one of the brightest pages in the history of dentistry.

The life of such a man as Dr. Miller is a landmark in scientific progress. Within a century's time there are but few. Dr. Miller's name takes rank with those of Pasteur, Lister, Virchow and Schwann, as that of a sincere, original investigator, who has brought truth to light for the benefit of all the world.

At our last annual meeting we directed that a letter be sent to him congratulating him on his return to America to take up the

work in Michigan University, and ourselves in having his presence in this country for a stimulus to scientific work. In response we received a very appreciative letter from him.

To his wife and children we, the members of this Association, desire to express our deepest sympathy and kindest regards.

J. D. MOODY,
GARRETT NEWKIRK,
E. L. TOWNSEND,
Committee.



MARYLAND DENTAL ASSOCIATION.

At the annual meeting of the Maryland State Dental Association, December 22, at the Baltimore College of Dental Surgery, the following officers were elected for 1908: President, G. E. Hardy; first vice-president, J. W. Smith; second vice-president, T. O. Heatwole; recording secretary, W. W. Dunbracco; corresponding secretary, F. F. Drew; treasurer, H. A. Wilson; members of the board of governors, Messrs. W. G. Foster and G. L. Deichmann.

RHODE ISLAND DENTAL SOCIETY.

The thirtieth annual session of the Rhode Island Dental Society was held January 14 at Providence, a banquet following the election of officers early in the evening. After dinner members of the society, over 100 of whom enjoyed the banquet, listened to addresses of an interesting nature by ex-Governor George H. Utter, Dr. George N. Bates of Boston and Dr. Joseph Head of Philadelphia. The officers chosen for the ensuing year are as follows: President, Dr. John J. Dolan, Providence; vice-president, Dr. A. M. Potter; secretary, Dr. Clarence E. Carr of Newport; treasurer, Dr. Ernest Charbonnel of Providence; executive committee, Drs. J. E. Heap and J. H. Manning, Providence, and M. M. Maloney, of Woonsocket.—*Dental Era*.

PROGRAM OF THE G. V. BLACK DENTAL CLUB OF ST. PAUL.

The Annual Clinic will be held in St. Paul on Thursday and Friday, February 27 and 28, 1908, at the Old Capitol Building.

Thursday, February 27, 10 a. m.: "Gold Filling," 1, Dr. A. C. Searl; 2, Dr. F. S. James; 3, Dr. J. W. S. Gallagher; 4, Dr. W. D. James; 5, Dr. K. E. Carlson; 6, Dr. W. R. Clack; 7, Dr. J. V. Conzett; 8, Dr. W. H. K. Moyer. "Cast Gold Inlay," 9, Dr. W. N. Murray; 10, Dr. G. N. Beemer; 11, Dr. J. O. Wells. "Amalgam Filling," 12, Dr. F. S. Robinson. Table Clinics. The list is not completed. 2 p. m.: Essay, "Western Dental Philosophy," Dr. E. S. Barnes, Seattle Wash.; essay, "A Consideration of Western Dental Philosophy by an Eastern Man," Dr. Chas. McManus, Hartford, Conn. 8:15 p. m.: Illustrated lecture, "Pathology of Dental Caries." Friday, February 28, 1908, 9 a. m.: "Gold Filling," 1, Dr. Wm. Finn; 2, Dr. W. G. Crandall; 3, Dr. F. J. Yerke; 4, Dr. A. M. Lewis; 5, Dr. F. S. James; 6, Dr. J. W. S. Gallagher; 7, Dr. J. F. Wallace; 8, Dr. C. H. Robinson; 9, Dr. A. C. Fawcett. "Cast Gold Inlay," 10, Dr. W. N. Murray; 11, Dr. F. S. Richardson; 12, Dr. C. E. Woodbury. 2 p. m.: Essay, "Gold Inlays," Dr. C. E. Woodbury, Council Bluffs, Iowa; essay, "Certain Phases of Our Professional Duty," Dr. C. N. Johnson, Chicago, Ill.

All the gold operations, with the exception of those made by Dr. Moyer, will be made in proximal or proximo occlusal surfaces.

On Thursday Dr. Finn of Cedar Rapids, Iowa, will demonstrate cavity preparation, instrumentation, packing of gold, etc., using large wooden teeth with cavities, clay, etc. This special demonstration will also be given on Friday.

Dr. W. H. Taggart of Chicago will assist Dr. W. N. Murray upon both days of the clinic.

A number of manufacturers have written for space in which to display those things which are new.

Dr. J. B. Ridout of St. Paul will demonstrate upon both days of the clinic.

Everybody interested in the advance and progress of the dental profession is invited to meet with and take part in our meeting.

For further information apply to R. B. Wilson, Secretary, American National Bank building, St. Paul, Minn.

MINNESOTA STATE BOARD OF DENTAL EXAMINERS.

The next regular meeting of the Minnesota State Board of Dental Examiners will be held at the College of Dentistry, University of Minnesota, in Minneapolis on March 10, 11 and 12, 1908. All applications must be in the hands of the Secretary by February 25.

For further information address Dr. G. S. Todd, Lake City, Minn.

SEMI-CENTENNIAL JUBILEE MEETING OF THE INDIANA STATE DENTAL ASSOCIATION.

The Indiana State Dental Association will celebrate its Fifteenth Anniversary, June 4, 5, 6, at Indianapolis with one of the largest meetings ever held.

The state associations of Michigan, Ohio, Kentucky and Illinois have accepted invitations to meet with us.

There will be five essayists: Drs. G. V. Black, Illinois; T. W. Brophy, Illinois; Charles Zederbaum, Michigan; M. H. Fletcher, Ohio; H. B. Holmes, Kentucky.

There will be fifty clinicians from these four states and practically all other state associations will be represented by clinicians.

All ethical dentists are invited, as this will be the big meeting of the year.

Very truly,

D. A. HOUSE.

ODONTOTECHNIQUE SOCIETY OF NEW JERSEY.

The regular monthly meeting of the Odontotechnique Society of New Jersey will be held Thursday evening, February 6, 1908, at the Elks' Club, 37 Greene Street, Newark. Dr. Ralph Waldron of Newark will read a paper entitled "Contracted Arches; Their Causes, Treatment and Results."

At the March meeting, Thursday evening, March 5, a paper of extraordinary interest will be read by Dr. D. A. Webb of Scranton on the subject of "Malignant Growths of the Jaw; Fractures, Etc." Stereoptican slides will be used to illustrate his essay.

Very truly yours,

JOHN R. VOORHEES,
Journal Correspondent.

SOUTHWESTERN MICHIGAN DENTAL SOCIETY.

The next meeting of the Southwestern Michigan Dental Society will be held in Jackson April 14-15. For information address C. W. Johnson, Lawton, Mich., Secretary.

Frink & Young, Chicago, Ill.:

Gentlemen—The next meeting of our society will be held at Jackson, Mich., April 14-15. Will you people be represented? I would like to ask that you kindly give us a write-up in your **AMERICAN DENTAL JOURNAL** of our coming meeting. Thanking you for your kindness, I remain, very truly,

C. W. JOHNSON.

MICHIGAN STATE DENTAL SOCIETY.

The much-talked of boat trip, in connection with the annual meeting of the Michigan Dental Society, is actually going to take place. The Committee having charge of arrangements have already secured the large passenger steamer, City of Mackinac, which will sail on Wednesday, June 10, 1908, at half-past nine in the morning. We will thus be able to spend the morning viewing the attractive scenery along the Detroit river, across Lake St. Clair, through the Flats (the so-called Venice of America) and the St. Clair river, to Port Huron, where the last stop to take on passengers will be made. Immediately after clearing this port the first meeting will be held, and after this a six o'clock dinner, followed by a smoker on deck and a short evening session. Table clinics will be the chief feature of the meeting, and ample time and opportunity for a leisurely and complete observation of all that is being done will be one of the advantages of the trip.

Early in the morning of the second day we will find ourselves entering St. Mary's river, and the entire morning will be devoted to the pleasure of viewing the scenes along this beautiful river, an inspection of the locks, and a couple of hours of sight-seeing on the Soo. After luncheon on board an afternoon session will be held, which we hope will be largely attended by those men in the northern part of the State who are unable to be with us on the entire trip. It is hoped to make this particular session the most important of the meeting, and one to be long remembered, and after dinner an evening session will be held while we are still in port.

The start on our return trip will be made early Friday morning, and everybody will be free to do as he pleases; an opportunity will also be given to spend a couple of hours viewing the sights at Mackinac Island. The final sessions of the society will be held on Friday afternoon and Saturday morning, Friday evening being devoted to music, dancing, and a general good time. The boat will arrive in Detroit early enough Saturday afternoon to allow all members residing out in the State to get evening trains for home.

The expense of this trip, including passage, meals, and berth, will be nineteen dollars for the round trip for each passenger. It will be necessary for those desiring to have accommodations reserved to send their name, together with a check for five dollars per person, to Dr. Oliver W. White, 406 Fine Arts building, Detroit, Mich., on or before February 15, 1908. Reservations will be made in the order in which requests are received, and your preference for either inside or an outside stateroom will be complied with so far as possible. The Navigation Company insists upon closing a contract with us by January 15, 1908, and it is for this reason that we must have early replies, and a deposit for five dollars per passenger; for otherwise we would not be in position to assume the heavy financial obligation involved in chartering the boat. You are also requested to send a check for the balance of the amount on May 1st, and immediately upon the receipt of this the chairman will forward tickets for both passage and berth. Please state in your application for reservations, if more than one is asked for, whether it is for yourself and wife or for two men, and if two men, who must be dentists, whether or not you are willing to have a third man assigned to the same stateroom. There is a double and a single berth in each stateroom, and because of the limited number of these rooms (only 150) we will especially appreciate the courtesy if men unaccompanied by their wives are willing to go three in a room. We are compelled to limit family parties to three persons who are willing to occupy a single stateroom.

All ethical dentists in the State are cordially invited.

Yours very truly,

OLIVER W. WHITE.

STERILIZING THE FORCEPS.

The forceps, including the handles, are boiled, in a solution of common washing soda, about a quart of water to a piece of soda the size of a walnut; and there is no rust. A mixture of vaseline and carbolic acid is rubbed on the joints while they are hot, which keeps them as good as new.—*F. E. Garner, British Dental Journal.*

OBJECTION TO THE USE OF SULPHATE OF POTASSIUM.

Sulphate of potassium should not be used in plaster that is used for models, for the reason that steam and water attack a model containing sulphate of potassium much more rapidly than if the plaster is mixed without potassium; therefore, we are trying to keep the plaster model hard as long as possible until the rubber has begun to carbonize.—*D. J. H. Prothero, Dental Register.*

MISCELLANEOUS

TO REPLACE A BROKEN FACING ON A BRIDGE IN THE MOUTH.

Select a facing of the proper color and as near the size of old facing as possible, cut off the pins and drill portion of pin remaining out of the facing. Grind facing to fit backing and set with cement and the repair is completed. I have repaired a number of broken facings in this manner and have got much better results than from any other method.

W. H. APP.
Decatur, Ill.

THE HORN Mallet.

The horn mallet as it is put on the market is practically worthless, and the student in the dental college is not informed what change to make in it in order to make it a useful instrument.

What is the matter with it? There is the sharp point, which is of no use whatever, and the other end is so large it is useless.

What is the remedy? Saw off the small end where it is $\frac{3}{4}$ -inch in diameter and round it with the rubber file, and then it is readily used over the palatal surface and around the margins. HASKELL.

SILVER NITRATE: PRECAUTION.

After cleansing the teeth, and in all infectious conditions of the gums and oral cavity, I use very frequently a 10 per cent silver nitrate solution, applied on a small swab. To prevent and neutralize the escharotic effects I first apply tincture of iodine liberally over the gums and about the teeth (but not in the cavities, as the teeth would discolor). I also follow the silver nitrate with more iodine, which prevents any free silver nitrate remaining. The surplus of tincture of iodine is quickly washed out and is only irritating.—*Otto Hollinger, Dental Review.*

SHORT METHOD OF USING METALLINE.

In the January issue of the *AMERICAN DENTAL JOURNAL* I see "A Plea for the Carved Cusp," with the use of metalline. The operation of making the carved cusp described can be made very much shorter. After carving the cusp, remove from the band and sandpaper the back of the metalline cusp so it will be about even with the band of crown; place on a smooth, hard surface and use Lauderdale or Coates swedger, placing the ring over the metalline cusp, first placing the piece of gold over the cusp of metalline and swedge.

It is not necessary to go to the trouble of making the Mellott metal die, as the metalline will stand swedging a perfect cusp.

Trim the cusp smaller at junction of cusp and band, only the thickness of the gold to be used. This method will be found to be more accurate, as the more models and dies that are made from a model or carving the less perfect will be the fit. This way produces the cusp directly from the carving and in one-half the time.

DR. B. B. AUTENRIETH.

VULCANIZING RUBBER.

I believe that the majority of rubber dentures are vulcanized at too high a temperature and in too short a time. A denture should be vulcanized at 280 or 290 degrees—depending upon the rubber—for three hours after the vulcanizer has reached that point. In that time a thick lower denture can be vulcanized solid; you can saw right through the mass and polish the cut surface, but you cannot do that if vulcanized at 320 degrees for fifty-five minutes approximately.—*Dr. Gritman, Dental Cosmos.*

BACKING PORCELAIN-FACED CROWNS.

By the following method a perfect backing can be secured in only one-third the time that it takes to bend up and burnish. Having ground the tooth at the back to the desired shape, dust it with French chalk and press it firmly with Mellotte's moldine. Draw away the tooth and insert in the pin hole pieces of steel, iron or copper wire about the same gauge as the platinum tooth pins; pour the fusible metal, draw away the die; dust with French chalk and take counter die. You can then strike up the backing without fear of breaking the tooth.—*W. B. R., Elliott's Quarterly.*

STICKY WAX.

The following is a formula for sticky wax: Pure white beeswax, 4 oz.; pure light yellow resin, 7 oz.; pure gum dammar, 1 oz.; dye q. s. to color. Powder the resin and gum dammar and add little by little the melted beeswax.—*Dental Record*.

BUBBLES IN PORCELAIN.

The reason we have so many bubbles in porcelain bridge work is on account of using too large quantities of porcelain at one time over a rigid framework. The first bake should never cover the pins, or even touch them; if it does, on shrinking it leaves an air space beneath, which later means a bubble. Apply and bake several times, until the framework is covered, bringing to a low glaze each time, and you will have porcelain free from bubbles.—A. W. Starbuck, *Western Dental Journal*.

ETHYL CHLORID SPRAY.

Ethyl chlorid spray is useful in hypersensitive dentin and the devitalization of pulps. The most effective way to use cold on a sensitive cavity is first to begin with a continuous blast of cold air from a compressed air tank, and as the sensation to this subsides, the spray may be directed upon the isolated tooth. If the cavity be deep or of great area, it should be filled with dry cotton before the spray is applied. Most sensitive labial and buccal cavities may be controlled by this means. There is always some danger of setting up such a congestion in the pulp that it may not recover. Ethyl chlorid spray on an anterior tooth where the pulp is partly dead and painful to touch will work wonders, or if the pulp is to be removed from a sound tooth ethyl chlorid will desensitize the dentin and the cocain pressure method may be used on the pulp when it is reached.—Dr. A. E. Webster, *Dental Magazine*.

PERSONAL AND GENERAL

Hill-Nee.—Dr. George Hill and Miss Grace Nee, both of Wheeling, W. Va., were married at McKeesport, Pa., January 16.

Bradley-Miller.—Dr. L. B. Bradley, of Beloit, Wis., and Miss Emily H. Miller, of Pewaukee, Wis., were married December 30.

Dentist Insane.—Dr. Fred Barber at Greeley, Colo., became violently insane December 28. The cause of his sudden insanity is unknown.

Paschek-Leming.—Dr. J. F. Paschek, of St. Louis, Mo., and Miss Mabel Leming, of Edwardsville, Mo., were married January 6.

Lewis-Padmore.—Dr. Leroy Wade Lewis, of Shenandoah, Iowa, and Miss Grace Padmore, of Marshalltown, Iowa, were married January 7.

Meter-McDanel.—Dr. William Meter, of Reading, Pa., and Miss Eleanor McDanel, of New Brighton, Pa., were married January 9.

McLean County Dental Society held a largely attended dental meeting in Bloomington January 13. The next meeting will be held March 9 in Pontiac.

Dental Office Burned.—The fire which destroyed six buildings at Emory, Texas, January 1 caused a considerable damage to the office of Dr. C. C. Cawthon; no insurance.

Kathryn Osterman, an actress, has begun suit against a dentist in Kansas City for \$5,000 damages for the use of her picture for advertising purposes without permission.

Bankrupt.—Dr. M. M. House, a dentist in Indianapolis, Ind., filed voluntary petitions in bankruptcy January 3. His liabilities are \$1,764.58 and assets \$254.00.

Miami Valley Dental Society held a meeting in Dayton, Ohio, January 6. Dr. A. Hawley read a paper on "Orthodontia." Dr. Hawley is president of the Society of Orthodontists of the United States.

Dentist's Wife Sells Papers.—The wife of a dentist in San Francisco, Cal., has been compelled to sell papers for support. The couple were divorced some time since and the dentist has neglected to pay alimony.

Peculiar Accident.—Dr. A. D. Aldrick, a dentist in Philadelphia, Pa., punctured an artery in his arm by striking upon a tooth in extracting a molar for a negress December 18 and nearly bled to death before medical attendance could be had.

The Rock Island County Dental Society held an interesting and instructive meeting in Moline, January 22, and elected the following officers: President, J. W. Gluesing, Moline; vice-president, W. H. Carl, Rock Island; secretary, A. H. McCandles, Rock Island; treasurer, John Taylor, Rock Island.

Town Without a Dentist.—The only dentist in Saugatuck, Mich., has retired from practice on account of failing eyesight.

Is Not Dead.—Dr. H. C. Etchternacht, a dentist at Marshalltown, Iowa, wishes us to correct the statement given out by a dental journal recently that he was dead. He is not dead.

Southeastern Iowa Dental Association held its meeting in Ottawa January 13. The meeting was opened by Dr. J. N. Armstrong and a very large attendance was reported and a successful meeting held.

St. Joseph County Dental Association held its meeting in South Bend January 13. The following were elected as officers for the ensuing year: Dr. D. S. L. LaPiere, president; Dr. John A. Stoeckley, vice president; Dr. Clem Shidler, secretary; Dr. Elmer I. Biestle, treasurer.

Peoria County Dental Society held its meeting in Peoria January 7. The following were elected as officers for the ensuing year: Dr. N. Melaik of Eureka, president; Dr. R. H. Daniels, vice president; Dr. W. A. Johnston, secretary; Dr. J. T. Houston, treasurer, and J. T. Nicol, librarian.

Will-Grundy County Dental Society held its meeting in Joliet, Ill., January 17 and elected the following officers for the ensuing year: President, Dr. J. R. Fouser; vice president, Dr. J. P. Leonard; secretary and treasurer, Dr. G. P. Saville; program committee, Dr. Harry Lotz and Dr. A. B. Patterson.

Knox County Dental Association held its meeting in Galesburg, Ill., January 18. The following officers presided, who were elected at a previous monthly meeting for the ensuing year: President, Dr. D. J. Griswold; vice president, Dr. George A. Smith; secretary, Dr. J. M. Lameraux, and treasurer, Dr. Gurley.

Black Hills Dental Society met in Rapid City January 6 and elected the following officers for the ensuing year: President, Dr. F. M. Gantz, Deadwood; vice president, Dr. L. E. Eaton, Hot Springs; secretary, Dr. A. L. Revelle, Lead; treasurer, Dr. G. E. LeMar, Rapid City. The next meeting will be held in Lead next July.

Second District Dental Society held its meeting in Brooklyn, N. Y., January 13. Dr. W. H. Taggart of Chicago gave a demonstration of his method of casting plates and bridges. Dr. Taggart was guest of honor at a banquet given in his honor in the evening, and later read a paper on the "Possibilities of Cast Metals in Prosthetic Dentistry."

New Dental Bill.—Senator Bulkeley proposed an amendment to the bill in the United States Senate January 14 to provide for reorganizing the army medical corps. The amendment creates a dental corps as part of the medical corps. This will give the dentists in the army a title and authority to enforce their orders concerning the enlisted men.

Dix Family of Dentists.—The Dix family, the active members of which are all practicing dentists, held a reunion December 25 at Aber-

deen, S. D. The following were present: Drs. George P. Dix, of Mitchell, S. D.; Edgar Dix and son of Broadhead, Wis.; Leona A. Dix and Aldred Dix of Aberdeen, S. D., and George P. is father of the three other doctors.

Removals.—Drs. Harry W. Conway, from Niles, Ohio, to Columbus, Ohio; C. R. Riddick, from Gatesville, N. C., to Ayden, N. C.; J. D. Kelly, from Susquehanna, Pa., to Binghamton, N. Y.; Dr. Garrison, from Charleston, W. Va., to Dayton, Va.; R. R. Bourne, from Hopkinsville, Ky., to Los Angeles, Cal.; T. F. Lewis, from Lapel, Ind., to Anderson, Ind.; W. E. Newcomb, from Leetonia, Ohio, to Cleveland, Ohio; Benj. Aumiller, from Carlisle, Pa., to Wrightsville, Pa.; A. A. Mark, from Dale, Wis., to Burlington, Wis.; Arthur Ramsey, from Hamilton, Ohio, to Oxford, Ohio; J. D. Wise, from West Point, Miss., to Jackson, Tenn.; J. E. Barnard, from Monroeville, Ohio, to Oberlin, Ohio; C. D. Tharp, from Weaubleau, Mo., to Humansville, Mo.; R. G. Dordgren, from Galva, Ill., to Rockford, Ill.; H. C. Mitchell, from Benton Harbor, Mich., to Rockford, Ill.; H. B. Gregory, from Marquette, Mich., to Chicago.

NECROLOGICAL.

Dr. Henry A. Smith, a dentist at North Adams, Mass., died January 14.

Dr. R. P. Welch, a dentist at Waynesboro, Pa., died January 14.

Dr. Edward F. Wise, a dentist at Selma, Ala., died January 8.

Dr. R. H. Libbey, a dentist at New London, Wis., died January 5. He was 28 years of age.

Dr. L. T. Hanks, a dentist at Dubuque, Iowa, is dead.

Dr. Clark T. Heydon, a dentist at Hackensack, N. J., died January 4.

Dr. George A. Wilson, a dentist at Detroit, Mich., died January 3.

Dr. Clarence E. Stroud, a dentist at Sandusky, Ohio, died January 9. He was 61 years of age.

Dr. Benjamin E. Eager, a dentist at Louisville, Ky., died December 27.

Dr. Thomas H. Marshall, a dentist at Bedford City, Va., died December 27. He was 72 years of age.

Dr. N. A. Royer, a dentist at Evansville, Ind., died December 27. He was 83 years of age.

Dr. Elizabeth D. McDonald, a dentist at Philadelphia, Pa., died December 20. She was 40 years of age.

Dr. N. Llein, a dentist at Santa Cruz, Cal., died December 22. He was 75 years of age.

Dr. Emerick Parmley, a dentist at Red Bank, N. J., died December 19. He was 78 years of age.

Dr. Alfred Rush, a dentist at Lewiston, Pa., died December 19.

Dr. C. M. Calvert is dead at Eau Claire of pneumonia. He was 57 years of age and had practiced in Eau Claire for thirty years.

Dr. Dwight Sale.—Dr. Dwight Sale, son of Dr. Frank O. Sale of Urbana, Ill., was killed December 13 while working temporarily in a mine in Bisbee, Ariz. He was a student of the Delta Tau Delta fraternity of Illinois. He was a very bright student and his untimely death is deplored by his many friends. He was a man of kindly disposition and exemplary character.

Southeastern Kansas Dental Association held its meeting January 20 and 21. The association embraces five counties.

Lamb-Hickman.—Dr. John P. Lamb and Miss Elsie Hickman, both of Johnson City, Tenn., were married January 14.

Fire at Chattanooga destroyed the dental office of Dr. S. B. Cook January 20. The loss was \$2,500, and \$1,500 insurance.

Robberies.—Dr. J. S. Betts, at Greensboro, N. C., loss \$50; Dr. William McL. Bethea, at Augusta, Ga., loss \$175; Dr. A. H. Knauff, at Pittsburg, Pa., loss \$600; Dr. Eubanks, at Birmingham, Ala., loss \$200; Dr. R. Bristol, at Bennington, Vt., loss \$100; Drs. Carson, Clark & Gregory, at Roanoke, Va., loss \$25.



DENTAL PATENTS

Fig. 1.

872,978. Method for Making Molds for Dental Inlays and the Like—William H. Taggart, Chicago, Ill. Original application filed January 12, 1907. Serial No. 351,917. Divided and this application filed July 12, 1907. Serial No. 383,482. Claim.—1. The process of making patterns for dental inlays and the like, which consists in molding plastic material upon the tooth surface to the size and shape of the desired inlay. 2. The process of making patterns for dental inlays and the like, which consists in molding wax upon the tooth surface to the size and shape of the desired inlay. 3. The process which consists in making a pattern of a tooth filling within the cavity to be filled and in contact with the surface thereof, removing the pattern from the cavity, forming about the pattern a mold provided with a sprue, and melting out the pattern. 4. The process which consists in forming a pattern for a tooth filling, attaching to the pattern a sprue former, supporting the pattern by means of the sprue former within a flask, and introducing investing material into the flask around the pattern.

Fig. 2.

873,789. Artificial-Tooth Crown and Bridge-Work—James B. Righter, River Falls, Wis. Filed August 9, 1906. Serial No. 329,932. Claim.—1. In tooth crown and bridge work of the character described, the combination with a coping, of a backing plate located upon the coping and having an undercut socket in its front face, investment located in rear

of the plate and upon the coping and securing the two together, and a tooth dummy having a rearwardly projecting-headed stud secured in the socket and interlocked with the undercut walls thereof.

Fig. 3.

874,189. Dental Articulator—William Hare, Galesburg, Ill. Filed July 1, 1907. Serial No. 381,667. Claim.—1. In combination, a lower plate, an upper plate pivoted thereto, and elastic means connected to the

FIG 1

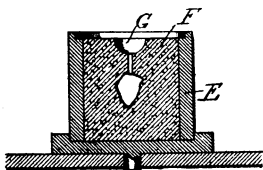


FIG 2

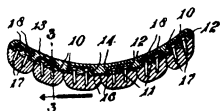


FIG 5

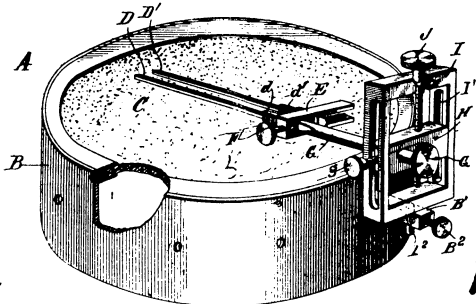


FIG 3

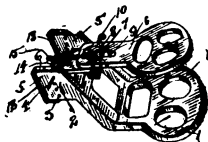
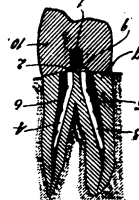


FIG 4



upper plate and the lower plate for elevating the upper plate. 2. In combination, a lower plate, an upper plate pivoted thereto, an elastic means connected to the upper plate and the lower plate for elevating the upper plate, and means for adjusting the tension of the elastic means. 3. In combination, a lower plate, an upper plate pivoted thereto, a bar movably held by the lower plate, and an elastic medium secured to the bar and to the upper plate to elevate the upper plate.

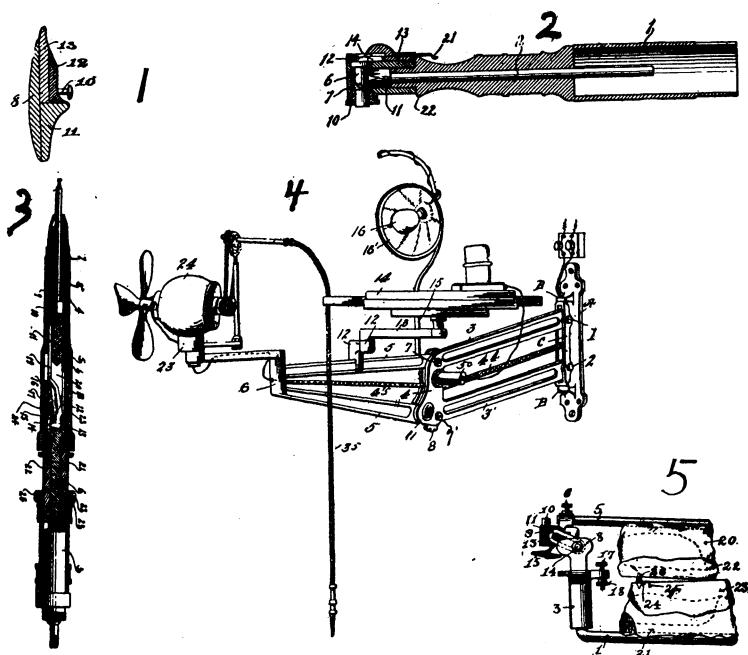
Fig. 4.

868,964. Crown-Pin for Dental Work—Henry D. Bultman, New

York, N. Y., assignor to Consolidated Dental Manufacturing Company, New York, N. Y., a corporation of New York. Filed June 8, 1906. Serial No. 320,743. Claim.—1. A crown-pin for dental work comprising a pin for the reception of a crown, the said pin having its inner end extended laterally beyond the body of the pin to form a support for root prongs and root prongs projected from said laterally extended end of the pin and spaced apart to leave a bearing space between them on the inner face of said laterally extended end.

Fig. 5.

874,199. Dental Soldering Apparatus—Jacob W. Horner, Columbus, Ind. Filed March 23, 1907. Serial No. 364,036. Claim.—1. An apparatus herein described comprising a pad, a pair of approximately parallel bars,



a carrier for said bars, a screw supported in said carrier and operating to adjust the said bars relatively toward and from each other, a shaft extending from said carrier, a block in which the said shaft is journaled and movable longitudinally, a screw in the block and engaging the shaft for securing the same in different adjustments, a frame in which said block is movable vertically, a screw in the frame for moving the block vertically, a support to which said frame is pivoted vertically, and means for securing the frame in any desired adjustment on its said vertical pivot, substantially as and for the purpose set forth.

FOR SALE.

Complete outfit and practice. Exceptional opportunity for good man. Finest location on South Side. Old stand, present outfit used two years. Answer at once. Address B. S. F., care AMERICAN DENTAL JOURNAL.

WANTED.

Good mechanical dentist, to do crown, bridge and plate work, by Southern dentist. Address Southern, care Frink & Young.

FOR SALE.

Dental office and residence combined; 9-room modern house in city of 14,000; good chance for man of ability; receipts, \$3,000 yearly; price, \$4,000, one-half cash, balance on time. Address N. F. W., care American Dental Journal.

FOR SALE.

Office in a thriving town in the richest part of Michigan, i. e., the Fruit Belt. Will sell for invoice of office furniture and laboratory outfit amounting to \$600. All cash would buy it a little less. Sale must be made at once. Good reasons for selling. No other dentist. City water and gas. Leon A. Stebbins, D. D. S., Lawrence, Mich.

FOR SALE.

A well-established, high-class advertising office in large city. Last year's cash about \$16,000. Business thoroughly established on main corner. Office occupies 12 rooms, all well equipped. Good prices for all work. Inventories about \$2,000. Sale price \$6,000. Part cash, balance on time payments. Would also consider a partner if thoroughly competent. Present owner's time is required in manufacturing business. Don't write unless you mean business and have the means. "Opportunity," care of Frink & Young.

Who Does Your Laboratory Work?

Good laboratory work is absolutely vital to your success. If you are doing this work for yourself, and are doing it well, it takes too much of your time and makes demands upon your strength which should be reserved for patients in the chair.

We ask to be given the opportunity to convince you that you can build up a reputation for the very highest grade of work, that you can have the advantages of a laboratory with unexcelled facilities and the most skilled workmen the country affords, and at the same time actually save money, by sending your laboratory work to us.

Farnum Quality of Laboratory Work Years Ago Set the Standard

We use only the latest and most approved machinery known to the profession. Our workmen produce results you cannot criticize; each is a specialist; any man who does one thing only and takes pride in his achievement more than meets expectations.

These conditions produce FARNUM QUALITY of work, and our perfect workmanship may become the standard of quality in your town if your orders are sent to us. We can help build you a local reputation which will inevitably increase your list of satisfied patients.

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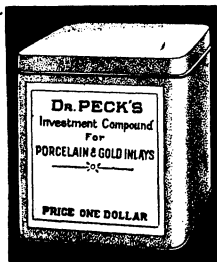
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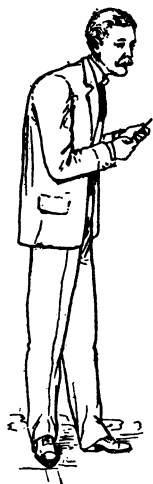
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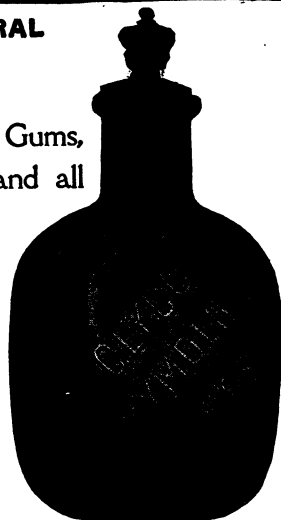
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